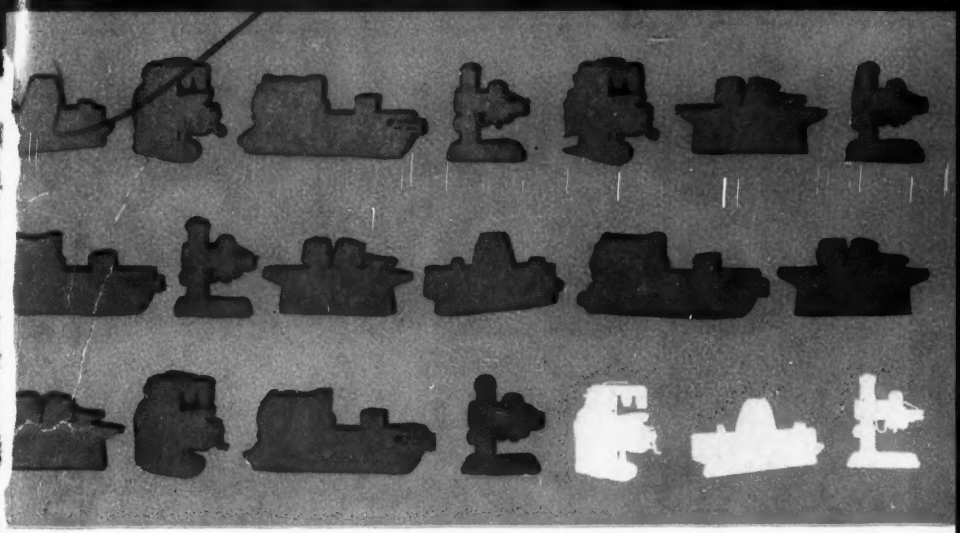
MODERN
Machine Shop
March, 1948

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Almost ALWAYS

Yes, on almost all metal working operations—on more than 85% of them, in fact—Cimcool does a better job. It replaces all water emulsions and all but a few highly compounded specialty oils; and gives improved performance. This new kind of cutting fluid—this chemical emulsion—combines friction reduction and cooling capacity in a degree never before attained—increases tool life—permits faster speeds. Let us show you the proof.

CIMCOOL DIVISION, THE CINCINNATI MILLING MACHINE CO.
CINCINNATI 9, OHIO, U. S. A.



CIMCOOL for 85%
OF ALL METAL WORKING JOBS

Trademark Reg. U.S. Pat. Off.

GORTON Duplicators *Give You*

Production Plus . . .

Lower "Short Run" Costs

Gorton Duplicators are highly versatile and are designed for profiling and duplicating all kinds of dies and molds for plastics, rubber, glass, drop forging dies, metal patterns, die casting dies. They are precision built to handle either production assignments or short runs.

For example, the Jacobsen Manufacturing Co. of Racine, Wisconsin had a small quantity of piston heads reshaped to a complicated design for the purpose of reducing compression. These were for small gasoline engines. To do this by conventional methods, would have taken several hours per piece. The time per piece on the Gorton was less than 20 minutes . . . (See Job Facts) . . . and each was an exact duplicate in shape and dimensions — an important requirement in this case.

Gorton equipment may save you money. Write for free Bulletin 1655 — see coupon below — or inquire about Gorton Engineering Service.

JOB FACTS!

JOB "Short Run" duplicating of piston head shape
MATERIAL Aluminum Alloy
MACHINE Gorton Duplicator with Tracer Control
CUTTERS 3/8" Tung-carbide shaped to fit angles of master; 2 flute
SPEED 4560 R.P.M.
NO. OF PIECES 20
SET-UP TIME 4 hours
TIME TO FINISH 6 hours (all 20 pieces)
REMARKS Minimum hand work required. Same cutter and stylus used throughout. Dia. of pistons 2". Max. depth of cut 15/32".



GORTON MACHINE CO.

Tracer Controlled Milling

1703 RACINE STREET, RACINE, WISCONSIN, U. S. A.

Please Send Without Obligation
Bulletin No. 1703 - 1655

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VOLUME 20 NUMBER 10
MARCH, 1948

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MODERN Machine Shop

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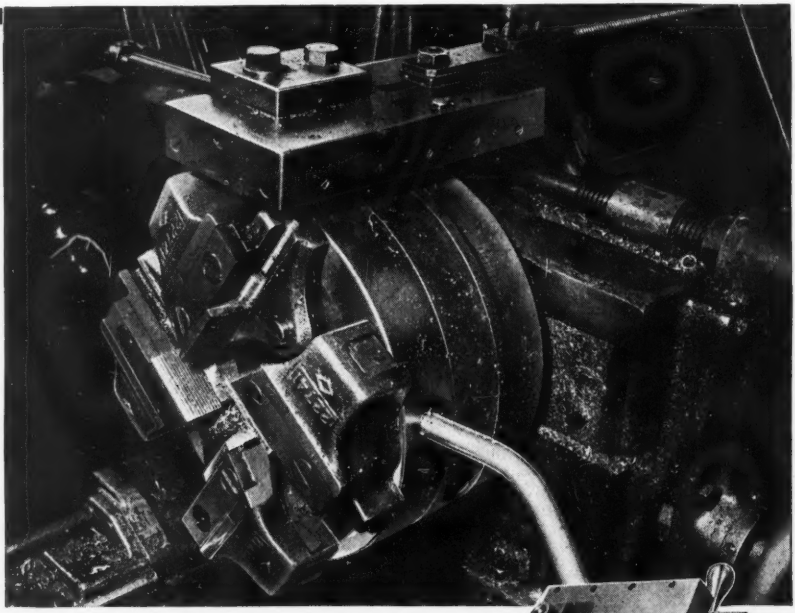
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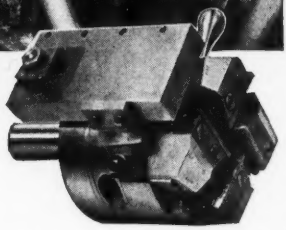
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For External Tapered Threads

LANDIS THREADING EQUIPMENT PRODUCES WELL-FORMED AND EXTREMELY ACCURATE THREADED PARTS





The LANDMATIC Taper Attachment Die Head is illustrated producing tapered threads on Stainless Steel Pipe.

● The use of Landmatic Taper Attachment Die Heads enables an Eastern manufacturer of Stainless Steel Valves to thread parts in a highly efficient and satisfactory manner at minimum cost. The cutting action of the Tangential Type Chasers used in the die heads is limited to the throat section by the receding mechanism of the tools. The receding action is provided by the taper attachment incorporated in the die head. This makes possible the production of threads without chaser "leave-off" marks and assures smooth finished threads as well as long tool life.

Write for Bulletin F-90

LANDIS MACHINE COMPANY

WAYNESBORO · PENNSYLVANIA · U.S.A.

EXCLUSIVELY NEW!
THE HEALD MODEL 261

VERTICAL COLUMN SURFACE GRINDER

➡ Furnishes more rigid support, smoother finish larger capacity

HERE'S a completely new Rotary Surface Grinder —the Heald Model 261 with exclusive "vertical column" design.

Wheel spindle is carried on a column, and chuck table rests directly on the ways of the base. A vertical slide carrying the wheel is mounted on anti-friction bearings. Results: rigidity . . . increased capacity . . . smoothest possible finish. Cuts are heavier . . . speeds and feeds more variable . . . setups quicker.

The new Model 261 follows the Heald principle of grinding with wheel periphery for a perfect concentric finish. Further research and development have added many other unique features. You can get complete details at one of the Heald branch offices maintained for your convenience.



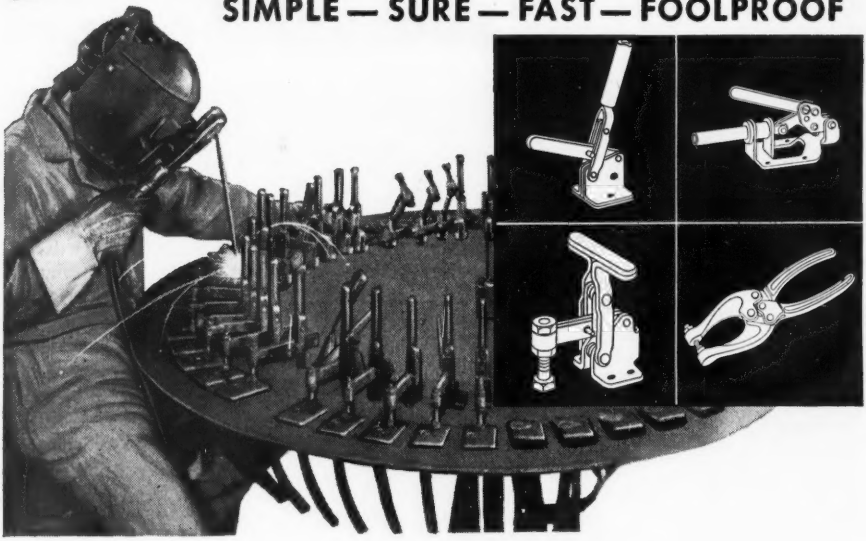
HEALD

THE HEALD MACHINE COMPANY, Worcester 6, Mass.

Branch Offices in Chicago • Cleveland • Dayton • Detroit • Indianapolis • Lansing • New York

SMART TOOLING!

SIMPLE — SURE — FAST — FOOLPROOF



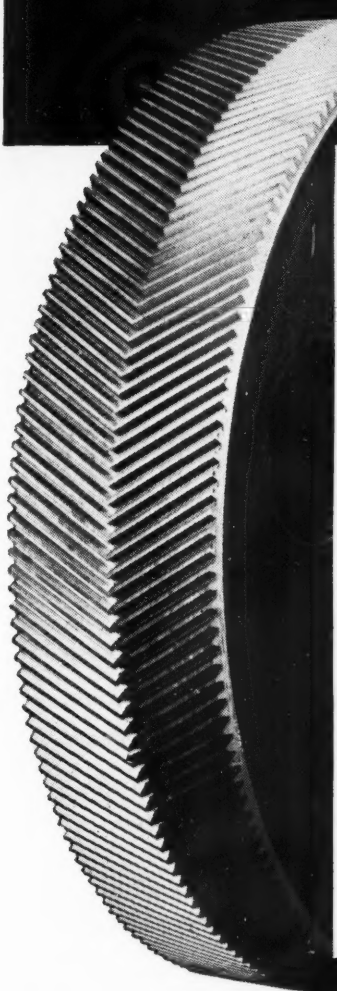
Here's efficient tooling based on the quick action and positive holding power of De-Sta-Co Toggle Clamps. This simple turntable with its 48 No. 210-S clamps enables one welder to keep abreast of two helpers. One places curved shank in socket and unloads finished assemblies. The other locates pierced hole in plate over shank and locks securely with toggle clamp. The expert welder works without interruption.

Smart tooling like this is the backbone of modern mass production technique. You'll see De-Sta-Co Toggle Clamps playing a similar vital part *wherever* the principles of sound tool engineering are observed.

Welding production is *only one* of the many fields for quick acting clamps. For holding parts in milling, drilling, routing, riveting, cementing—for fast, uniform, *foolproof* action—progressive tooling demands De-Sta-Co adaptability and quality. There's a De-Sta-Co clamp for every job, designed and built to stand up under the wear and tear of volume production. Send for copy of Catalog No. 47.

DETROIT STAMPING COMPANY
349 Midland Ave. Detroit 3, Mich.

Should any part of a gear get a FREE RIDE?



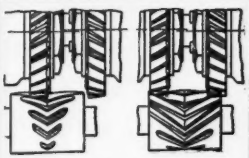
The center groove you've seen in some herringbone gears serves no useful purpose. It is given a free ride simply because the machines used in cutting the gears are unable to cut continuous teeth.

In Farrel-Sykes herringbone gears, the full face width is put to work transmitting power. In place of a tool-clearance groove, these gears have a *backbone* formed where the helices meet in the center. This *backbone* makes the teeth continuous across the face, providing extra strength and load-carrying capacity. The diagram illustrates how the Farrel-Sykes method of precision generation produces the *Gear with a Backbone.*

When you need gears, remember that you can get Farrel-Sykes continuous tooth herringbone gears in any size from ¼ inch to 20 feet in diameter, ¼ inch to 60 inch face, 24 DP to 0.75 DP.

For further information on Farrel gears and gear units, write for descriptive bulletins.

PB-349



The cutters of Farrel-Sykes machines reciprocate, one cutting when movement is in one direction and the other when the movement is reversed. Each ends its stroke at the center of the blank. As they cut they twist to generate the helices, and also slowly revolve in unison with the gear blank to generate the tooth contours precisely.

FARREL-BIRMINGHAM COMPANY, INC.

344 VULCAN ST., BUFFALO 7, N. Y.

Plants: Ansonia and Derby, Conn.; Buffalo, N. Y.

Sales Office: Ansonia, Buffalo, New York, Boston, Pittsburgh, Akron, Chicago, Los Angeles, Tulsa, Houston

Farrel-Birmingham

HANSON-WHITNEY



FAST.... ACCURATE... FLEXIBLE

SEMI-AUTOMATIC
THREAD MILLING MACHINES

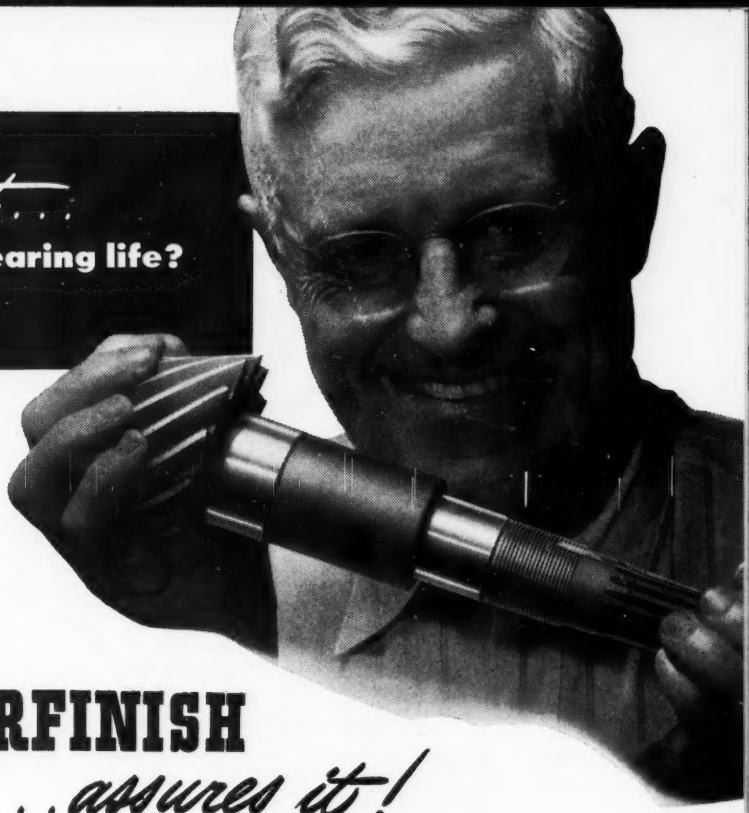
Results tell the story . . . more accurate threading on an economical high speed basis. Hanson-Whitney Thread Millers assure the automatic production of perfect threads, eliminate costly spoilage . . . meet the demand for closer limits. Widely adaptable for straight or taper threads . . . internal or external . . . right or left hand. Multiple cutters finish threads in one revolution of work. Available in three sizes for diversified capacity requirements.

HANSON-WHITNEY MACHINE CO. HARTFORD 2, CONN.
Division of Whitney-Hanson Industries, Inc.

Write today for complete details that will help solve your thread production problem.

Hanson Whitney
PIONEERS OF FINISHED TAPS

2HW48



want . . .
longer bearing life?

SUPERFINISH
. . . assures it!

●Yes, you can double—triple—quadruple—the life of bearings with simple, precautionary measures which take only a few minutes.

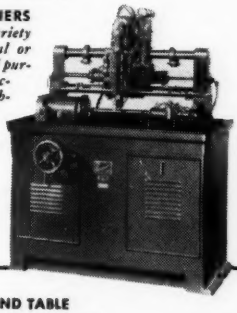
Examine a finely ground surface. No matter how smooth it may appear, it has defects in the form of grinder scratches, chatter and feed marks, and "smear metal" softened by the heat of grinding wheels. When these tiny metal ridges rub together, they rupture the protective oil film to cause scoring, excessive wear and increased clearances.

Superfinishing removes these defects—produces a bearing surface that is virtually frictionless. And its life is almost unlimited.

Superfinishing is a much quicker and more economical process than you may think. And it pays for itself many times over in better service and lower replacement cost.

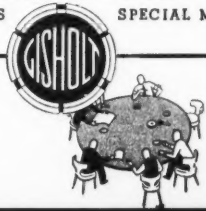
Ask your nearest Gisholt Representative for the facts about Superfinishing.

GISHOLT SUPERFINISHERS *are available in a variety of types for cylindrical or flat surfaces; for general purpose or continuous production work; also as attachments for use on lathes. Write for literature.*



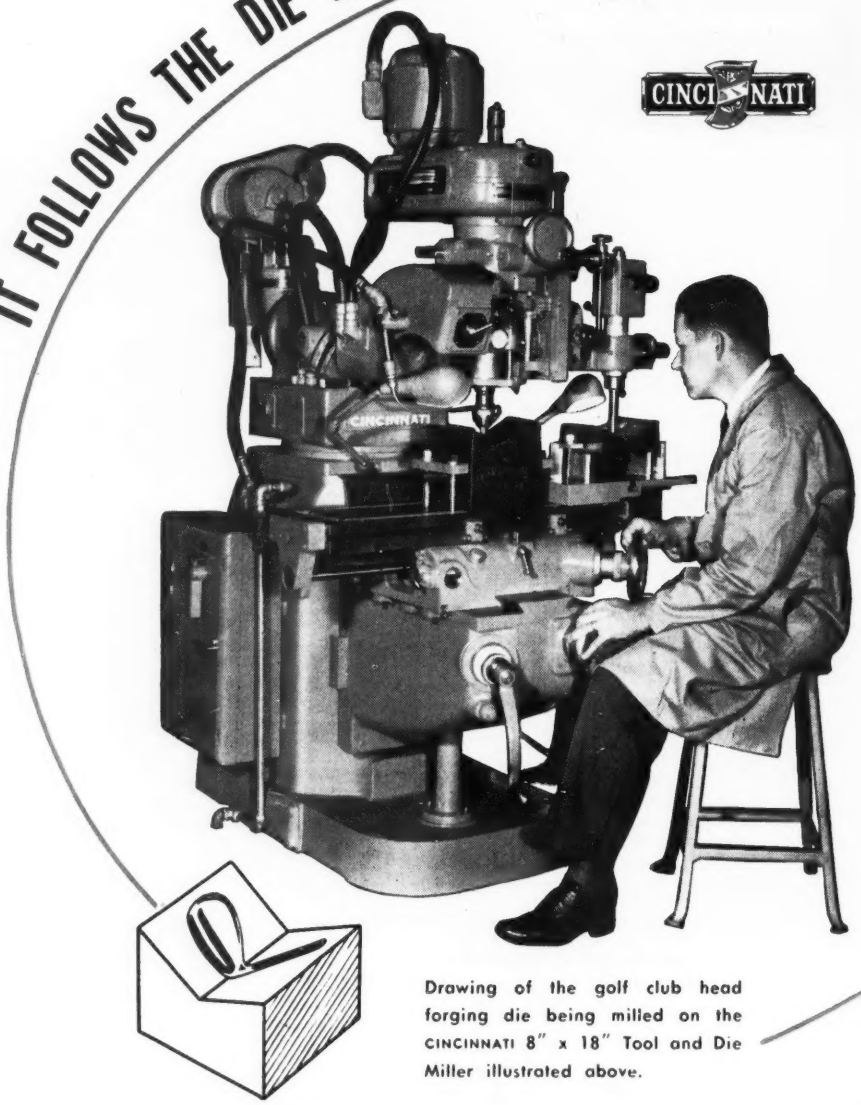
GISHOLT MACHINE COMPANY • *Madison 3, Wisconsin*

TURRET LATHES • AUTOMATIC LATHES • BALANCERS
SUPERFINISHERS SPECIAL MACHINES



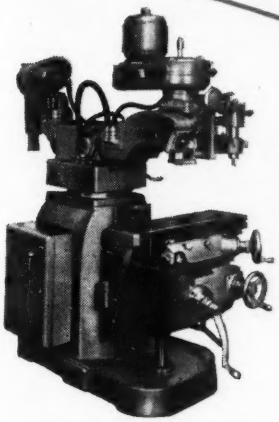
THE GISHOLT ROUND TABLE
represents the collective experience of specialists in the machining, surface finishing and balancing of round or partly round parts. Your problems are welcomed here.

IT FOLLOWS THE DIE IMPRESSION AUTOMATICALLY



Drawing of the golf club head forging die being milled on the CINCINNATI 8" x 18" Tool and Die Miller illustrated above.

AND EXERTS ONLY A FEW OUNCES PRESSURE



CINCINNATI 8" x 18" Tool and Die Milling Machine. Catalog M-1620 contains complete specifications.

● A delicate touch counts a lot in diesinking. Upon it depends the material of which the master is made; and the accuracy and finish of the die impression. The tracer finger of the duplicating unit on the new CINCINNATI 8" x 18" Tool and Die Miller supplies the delicate touch, independent of any human control. It responds to a few ounces pressure, automatically following the ups and downs of the impressions in the master. The operator can concentrate *all* his attention on the job, as he is doing in the illustration on the opposite page while milling a golf club head forging die. With his hands on the table and cross traverse handwheels, he has unusually sensitive feed control, for the feed screws engage *antifriction nuts*. These new CINCINNATI'S offer many other features of value in tool and die milling. Complete information is available by writing for catalog M-1620.

THE CINCINNATI MILLING MACHINE CO.

CINCINNATI 9, OHIO, U. S. A.

MILLING MACHINES • CUTTER SHARPENING MACHINES • BROACHING MACHINES

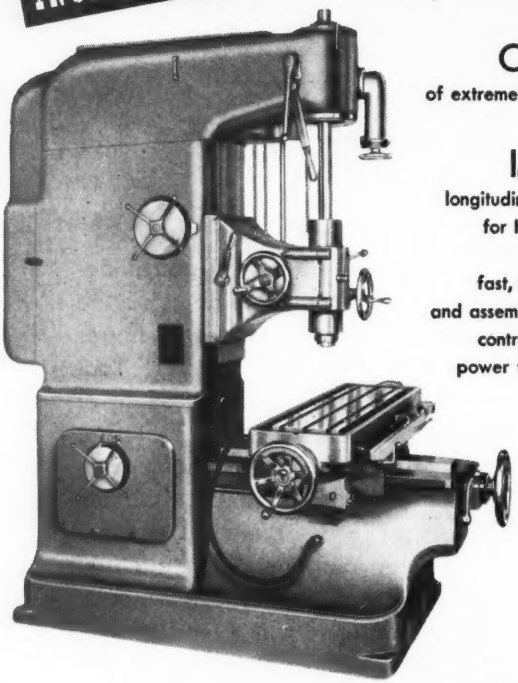
Eliminate Extra Setup Time

REDUCE UNIT COSTS

Save Unnecessary Work Transfers

INCREASE PRODUCTIVE TIME

No. 50 PRECISION BORING AND VERTICAL MILLING MACHINE



Combined in a single solid-base machine of extreme capacity — every feature for precision boring and accurate milling!

In the No. 50 are exceptional cross and longitudinal table travel plus long spindle travel for handling an extensive range of work — rugged, rigid bed-type construction for fast, heavy cutting — precision manufactured and assembled for positive accuracy — convenient controls for easy, effortless operation — and power to spare for the heaviest, toughest jobs.

With far greater range than other machines of comparable size, the No. 50 is an assured investment in reduced costs and more profitable production.

Send For Complete Catalog Details

Sixteen Spindle speeds, 40 to 2000 r.p.m. • 9 Spindle feeds, .005" to .010" • 100" table traverse per minute in both directions • 16 Table feeds, 5/16" to 20" per minute • 7½ h.p. Drive

W. B. KNIGHT MACHINERY COMPANY

KNIGHT VERSATILE MILLERS ACCURATE - RIGID

MORE GOODS for MORE PEOPLE at LOWER COST

3920 WEST PINE BLVD. • ST. LOUIS 8, MISSOURI



50% to 100% More Gears per Cutter with SUPERITE

The POST TREATMENT FOR HIGH-SPEED STEEL

...a notable development by Fellows



99%
INCREASE IN CUTTER LIFE



64.9%
INCREASE IN CUTTER LIFE



110%
INCREASE IN CUTTER LIFE

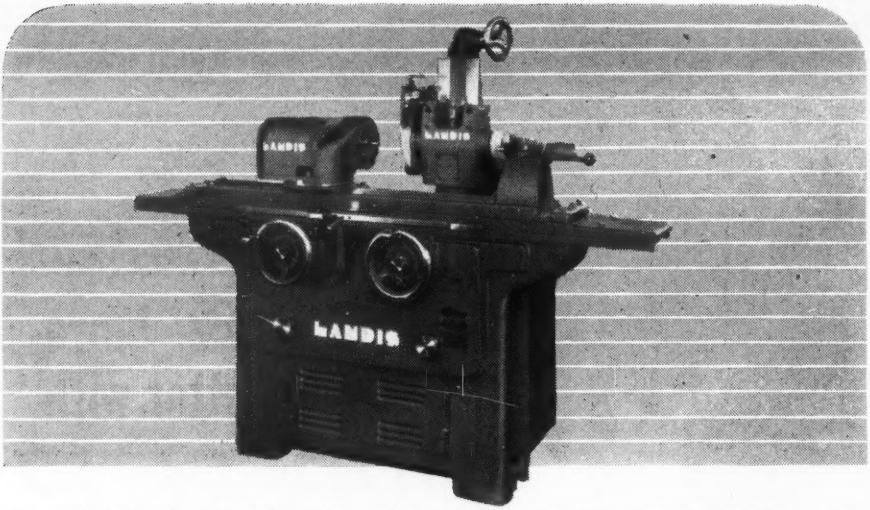
Actual performance tests of "SUPERITE"-Treated Cutters in customers' plants are shown in the accompanying figures.

"SUPERITE"-Treated Cutters and Tools, though slightly higher in initial cost, represent a substantial saving in that they produce a greater number of gears per sharpening, and per total cutter life... resulting in an overall saving of productive machine time.

The process is exclusive with Fellows, performed only at our plant in Springfield, Vermont. Arrangements can be made, however, for cutting tests in your plant. Contact our nearest office.

Fellows

The Fellows Gear Shaper Co., Head Office and Export Dept., Springfield, Vermont. Branch Offices: 616 Fisher Building, Detroit 2; 640 West Town Office Building, Chicago 12; 7706 Empire State Building, New York 1.



SAVE MONEY YEAR AFTER YEAR

on precision grinding for tool room and production work

The plus features of Landis Tool precision grinders give a lot more performance for little more money

Ease of changing set-up, convenient operator controls and ability to do production as well as tool room grinding, are typical features of this machine that increase output, reduce rejects, and save you money year after year.



12x28 UNIVERSAL AND TOOL

cylindrical, face, taper, internal and surface grinding plus 20 types of tool grinding, some with optional equipment—Catalog K 45.

Help for grinder operators—Free 68 page book "Better Grinding"

World's largest manufacturer of precision grinders exclusively

LANDIS TOOL

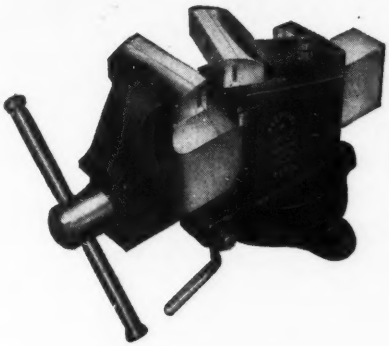
Precision Grinders

LANDIS TOOL COMPANY, 16 EAST 6TH ST., WAYNESBORO, PENNA.

PRENTISS VISES

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FOR EVERY JOB



THE COMPLETE LINE
MACHINISTS' COMBINATION PIPE
TOP SWIVEL JAW HINGE PIPE
WOODWORKERS' UTILITY

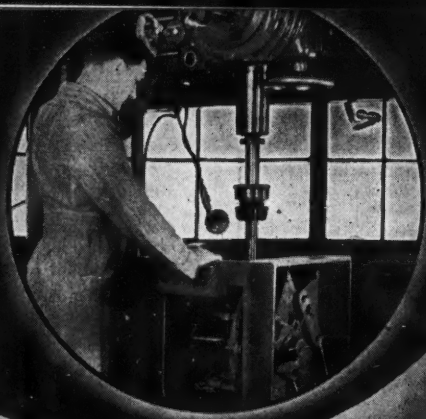
We offer improved PRENTISS VISES over the well known high quality line that has served industry for 80 years.

Renewable steel jaws that cannot work loose, swivel base with a positive lock plus other features give you vises that will stand the most severe tests and prove satisfactory.

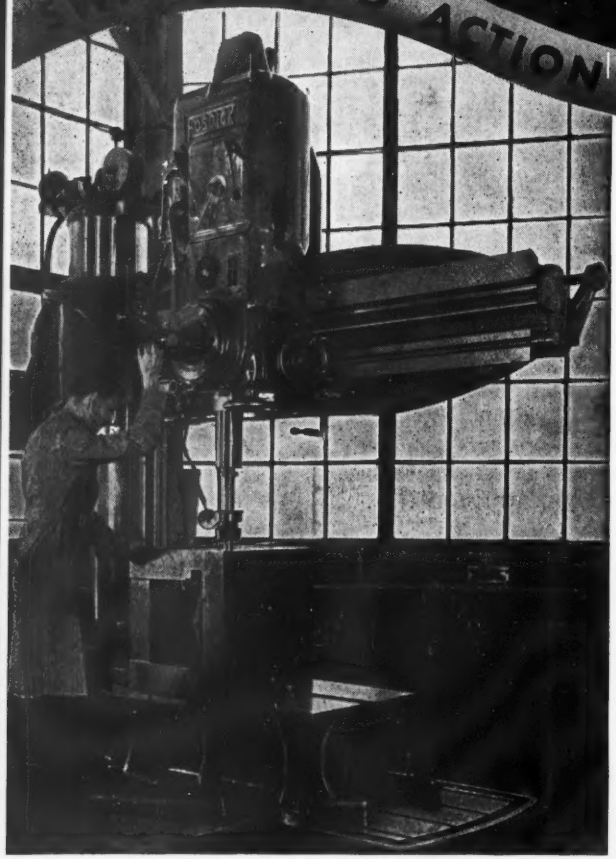
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FOSDICK RADIAL



SWINGS INTO ACTION AT



EX-CELL-O CORPORATION

The part being drilled is only one of many parts of various Ex-Cell-O machines that are drilled, tapped or bored on the sturdy, time and labor saving FOSDICK RADIAL DRILL.

A box jig holds the work while drilling, reaming or tapping various diameter holes from two or more sides.

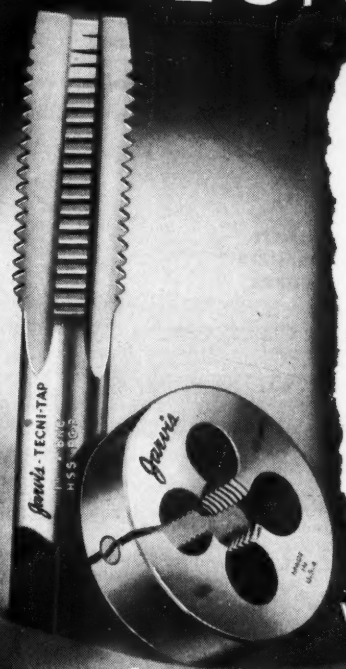
Note the convenience and time-saving features of centralized control in the head. A wide range of feed and speed changes, as well as hand feed, are instantly available.

If ***your*** work can be handled on a Radial, it can be done on a Fosdick. ***Write for Bulletin MSR for full particulars.***

FOSDICK MACHINE TOOL CO.
CINCINNATI 23, OHIO

TOPS in TAPPING

Jarvis TECNI-TAPS



For maximum performance under tapping conditions prevailing in your shop, make your next order read "Jarvis TECNI-TAPS" . . . custom finished to meet your demands. TECNI-TAPS cut more threads with less power, require minimum sharpening and provide greater dependability on the job. There is a Jarvis representative in your territory. Try "Jarvis TECNI-TAPS" and see, feel and figure the difference.

WRITE FOR BULLETIN JD-101

Jarvis POWER TOOLS

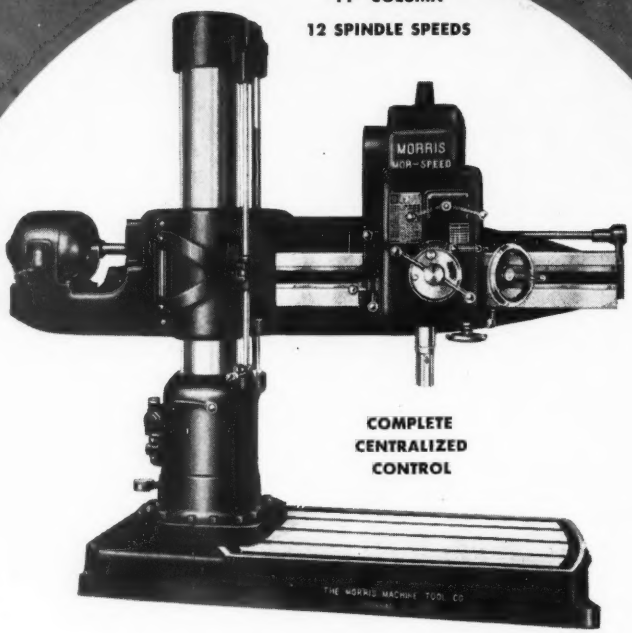
THE CHARLES L. JARVIS CO., MIDDLETOWN IN CONNECTICUT

Rotary Files • Flexible Shaft Machines • Taps and Dies
Tapping Attachments • Quick Change Collets and Chucks

MORRIS *Mor-Speed* RADIALS

11″ COLUMN

12 SPINDLE SPEEDS



COMPLETE CENTRALIZED CONTROL

Mor-Speed Radials are of rigid construction to meet the demand for fast, economical drilling, boring, reaming, facing and tapping. Automatic lubrication plus the use of the finest materials and correct design assure long, carefree life.

EASY TO OPERATE CENTRALIZED CONTROL— All speed and feed changes are located in the head. All changes are instantly made from operator's normal working position. INDEX PLATES are direct reading. They are placed directly at speed and feed change levers.

DIAL DEPTH GAUGE is graduated and has direct-reading plate for setting drills to compensate for drill points.

THE HEAD CLAMP is located on the side of the head and clamps the head absolutely tight to the arm.

ELEVATING MECHANISM is built into the rear of the arm, is fully enclosed and entire unit is anti-friction mounted and runs in oil. Arm elevation is controlled by a separate ball bearing motor with reversing drum switch. It is connected to the revolving elevating nut which operates on a stationary elevating screw.

Builders of **MOR-SPEED** *Lines*

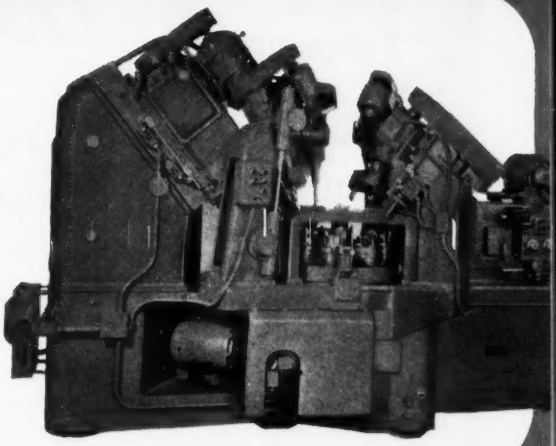
The **MORRIS**

CINCINNATI

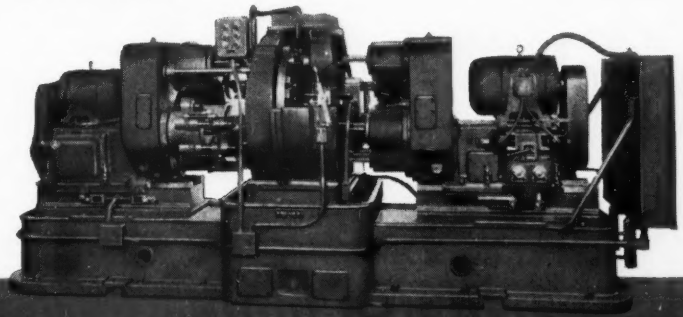
MORRIS *Mor-Speed*

High Production Machines

This machine was designed to drill, chamfer and tap refrigerator bearing plates at various angles. It has an eight station automatic indexing table for carrying the work and independent hydraulic units carry the 9 drill spindles and 1 tap spindle.

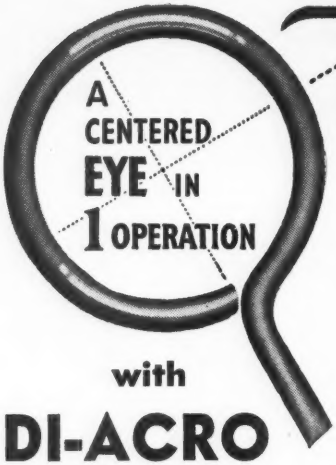


A two-way horizontal machine which handles drilling, reaming, countersinking and tapping operations on seven pieces simultaneously. The machine has an eight station automatic indexing work head with hand clamping fixtures. All machine functions aside from loading and clamping are automatic.



Machine Tool Company

3 OHIO



Precision CENTERED EYE Bending

with

DI-ACRO BENDERS

The DI-ACRO Bender makes perfectly centered eyes from rod or strip stock at a high rate of production. Both eye and centering bend are formed with one operation. Any size eye may be formed within capacity of bender and ductile limits of material.

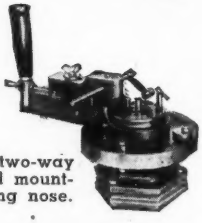
DI-ACRO precision bending is accurate to .001" for duplicated parts. DI-ACRO Benders bend angle, channel, rod, tubing, wire, moulding, chanstock, etc. Machines are easily adjustable for simple, compound and reverse bends of varying radii.

See DI-ACRO Exhibit

BOOTH 232

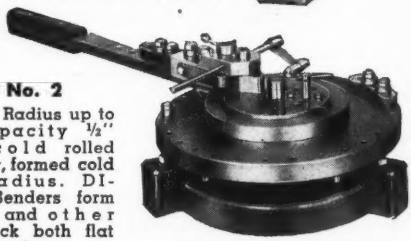
Tool Engineers Industrial Exposition

Cleveland, March 15-19



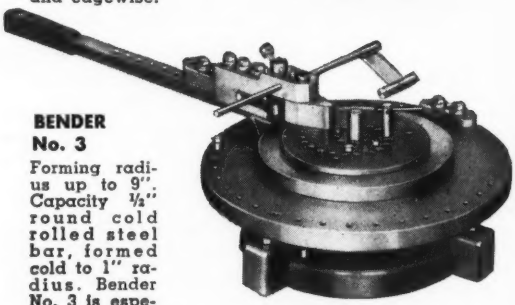
BENDER No. 1

Forming radius up to 2". Capacity 7/32" round cold rolled steel bar or equivalent. All DI-ACRO Benders have two-way action, right or left hand mounting and reversible forming nose.



BENDER No. 2

Forming Radius up to 6". Capacity ½" round cold rolled steel bar, formed cold to 1" radius. DI-ACRO Benders form bus bar and other strip stock both flat and edgewise.



BENDER No. 3

Forming radius up to 9". Capacity ½" round cold rolled steel bar, formed cold to 1" radius. Bender No. 3 is especially designed for aircraft, marine and other large radius bending.



Pronounced "DIE-ACK-RO"

DI-ACRO PRECISION MACHINES DIE-LESS DUPLICATING

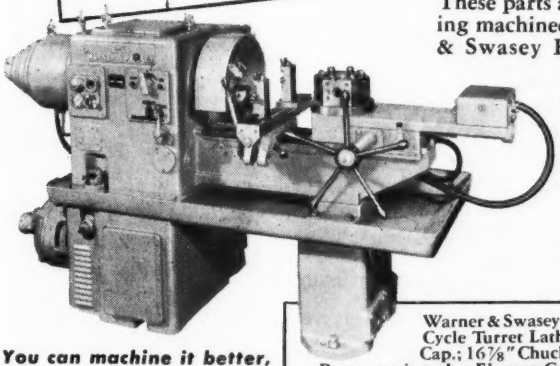
O'NEIL-IRWIN MFG. CO.

306 8TH AVENUE • LAKE CITY, MINNESOTA

74.9% AVERAGE PRODUCTION INCREASE WITH WARNER & SWASEY ELECTRO-CYCLES!

PRODUCTION RECORD

PART	PART NAME	OPERATIONS	PRODUCTION INCREASE
	3/4" Clamp Socket	Turn, Face, Counterbore, Chamfer, Thread	136.4%
		Face, Round, Turn	226.3%
	Tap Body	Drill (2), Face (2), Tap (1), Chamfer (2)	47.5%
		Drill, Turn, Thread	45.9%
	1/4" Air Cock Body	Turn, Drill, Thread, Chamfer	26.6%
	Bottom Flange	Drill, Turn, Face, Neck, Thread, Chamfer	37.0%
	Air Distributor Body	Drill, Tap, Chamfer	59.7%
	Water Faucet Body	Drill, Neck, Recess Tap, Thread, Chamfer, Seat	49.4%
		Drill, Form, Face	45.4%
		Drill, Face, Form Tap, Chamfer	50.9%
	Air Regulator Body	Drill, Recess, Turn, Face, Thread	86.2%
		Drill, Tap	26.6%
	Solid Tap Nut	Counterbore, Tap	70.3%
	Tap Bottom Body	Drill, Face, Counterbore, Tap	28.0%



These parts are typical of the many jobs being machined in one brass shop on Warner & Swasey Electro-Cycle Turret Lathes.

Ranging from 2 to 6 operations and in lots of 100 to 10,000, a substantial profit was realized when each part was machined on faster, easier operating Electro-Cycles.

Better find out—and quickly—what these new Electro-Cycles can do for you!

WRITE—

You can machine it better, faster, for less . . . with a Warner & Swasey

Warner & Swasey 16" Electro-Cycle Turret Lathe 1½" Bar Cap.; 16⅞" Chucking Swing. By presetting the Electro-Cycle "drum control", spindle speed, starts and stops, spindle direction, and reverses for each turret face are automatically controlled. Operator zips through precision operations without time-consuming manual operations.

WARNER & SWASEY
Machine Tools
Cleveland

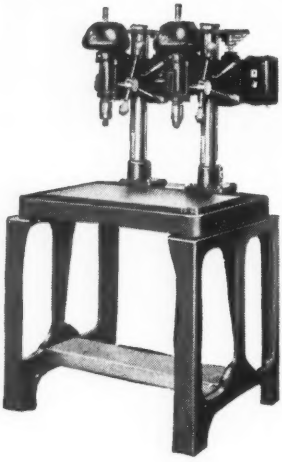
TURRET LATHES, MULTIPLE & SINGLE SPINDLE AUTOMATICS, PRECISION TAPPING AND THREADING MACHINES

FOR LOWER MANUFACTURING COSTS

MORE PRODUCTION ON THE *Drilling Line*

MACHINE TOOLS by "Buffalo"

If you are considering ways to get more holes drilled per hour in your production lineups, look into "Buffalo" No. 15 Drills! They're arranged for quick speed and setup changes—controls are within handy reach. Even inexperienced operators do accurate work. These are precision-built machines with rigid, 2¾" columns, all parts well fitted. Excellent for sheet metal work, soft metal castings. DON'T LET DRILLING "BOTTLENECK" YOUR PRODUCTION! Write now for facts on "Buffalo" No. 15 Drills.



NO. 15 DRILLS

Keep Productoin Moving!

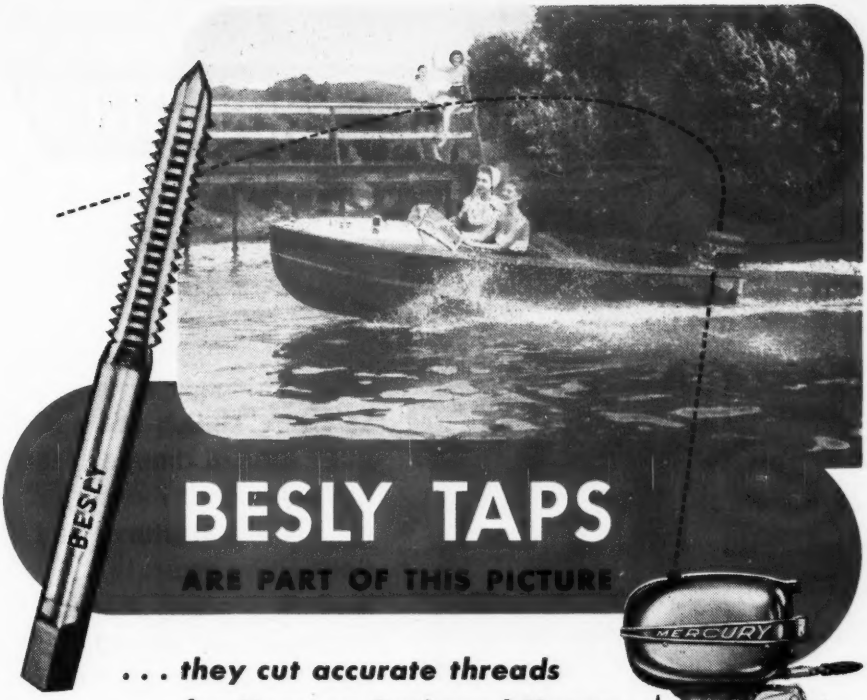
- ★ BACK SPOT FACERS
- ★ BAR CUTTERS
- ★ BENDING ROLLS
- ★ BILLET SHEARS
- ★ DOUBLE END PUNCHES AND SHEARS
- ★ LOCOMOTIVE SHEARS
- ★ MILL TYPE SHEARS
- ★ RAPID ACTING PUNCHES
- ★ SINGLE END SHEARS
- ★ SPRUE CUTTERS
- ★ STRUCTURAL IRON WORKERS
- ★ UNIVERSAL IRON WORKERS
- ★ DRILLS FOR THE PRODUCTION LINE—DRILLS FOR THE TOOL ROOM

BUFFALO FORGE COMPANY

388 BROADWAY BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

CONTINUOUS SERVICE—FASTER OPERATION—PEAK ACCURACY



BESLY TAPS

ARE PART OF THIS PICTURE

. . . they cut accurate threads for Mercury Outboard Motors

For close tolerance threading of aluminum outboard motor parts the Kiekhaefer Corporation, Cedarburg, and Fond du Lac, Wisconsin, relies on Besly taps to help achieve the power and reliability for which Mercury Motors are world-famous.

Whatever the needs of the job may be, Besly Taps ***—for more than 50 years—*** have proved their capacity to meet the most difficult specifications for economical precision threading in all types of work.

Besly engineers are ready to help you select the right tap for the job. Ask your distributor about Besly Taps and Besly service.



Useful Facts for TAP USERS

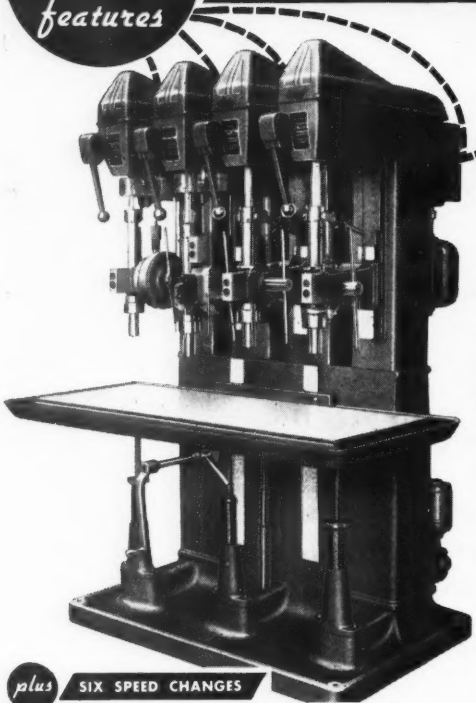
Get a free copy of this practical reference manual. It was prepared by shop men for shop men. Tap fits and drill sizes are listed in detail. *Write today on your letterhead for a copy*

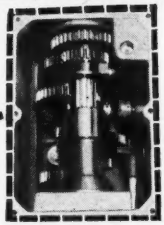
BESLY — BESLY TAPS • BESLY TITAN ABRASIVE WHEELS
BESLY GRINDERS AND ACCESSORIES

CHARLES H. BESLY AND COMPANY • *Company Stocks at Chicago and Detroit*
118-124 North Clinton Street, Chicago 6, Illinois • Factory: Beloit, Wisconsin

Avey's PLUS features

add up to TOP PRODUCTION



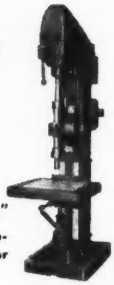


Selective, sliding gears of AVEY BMA-6 change speeds quickly and easily. Each gear is manufactured and finished by accurate, modern process, shaved, hardened and lapped. Insures smooth operation and long performance.

AVEY TYPE BMA-6

Four Spindle—12" Overhang

1st spindle—Avey-matic feed
2nd spindle—Plain power feed
3rd spindle—Hand Feed
4th spindle—Tapping (reversing motor)



CAPACITY Cast-Iron

No. 2BMA6—⅞" No. 3BMA6—1¼"

Single to six spindle machines, equipped with hand feed, power feed or reversing motor tapping.

plus **SIX SPEED CHANGES**

On the AVEY BMA-6 six speed changes are made through selective, sliding gears. This automotive type of gear shift is controlled by a single lever at front of machine. Provides versatility and effective operation.

plus **FINAL SPINDLE DRIVE—VEE BELTS**

Vee belt used on final drive from gear box to spindle. Increases speed and sensitivity in drilling. Carries full horse power from motor to job.

plus **STANDARD MOTOR — EACH SPINDLE**

Each spindle of AVEY BMA-6 individually motor-driven by standard frame constant speed motor. Foot-mounted motor easily interchanged or replaced. Standard motors can be stocked.

CLIP AND MAIL TODAY

Avey DRILLING MACHINES
CINCINNATI, OHIO

AVEY DRILLING MACHINE CO., 4
CINCINNATI 1, OHIO

Gentlemen: Please send without obligation your new Bulletin 647.

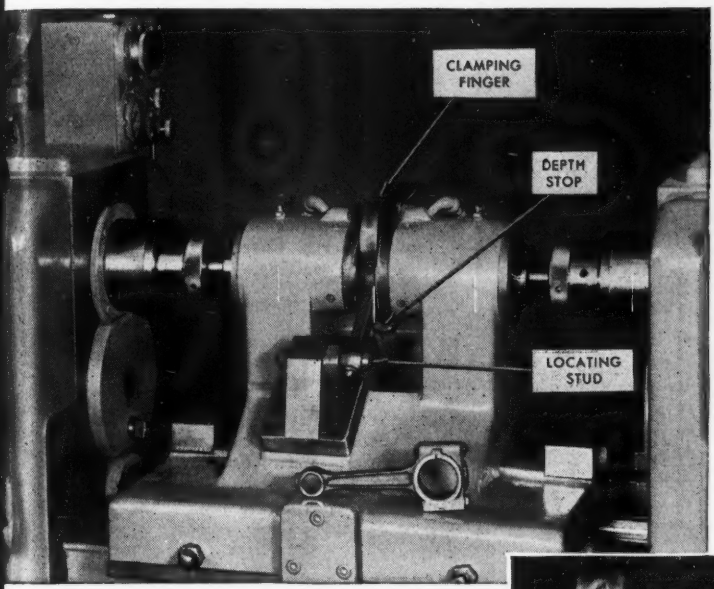
COMPANY_____

ADDRESS_____

NAME_____

MACHINE OF THE MONTH

PREPARED BY THE SENECA FALLS MACHINE CO. **"THE Lo-swing PEOPLE"** SENECA FALLS, NEW YORK



Model "CS" Lo-swing Automatic Drillin and Centering Machin Cuts Costs on Chamfering Connecting Rod Main Bearings

blem: To automatically chamfer both sides of connecting main bearings. It must be smooth and free from chatter ks.

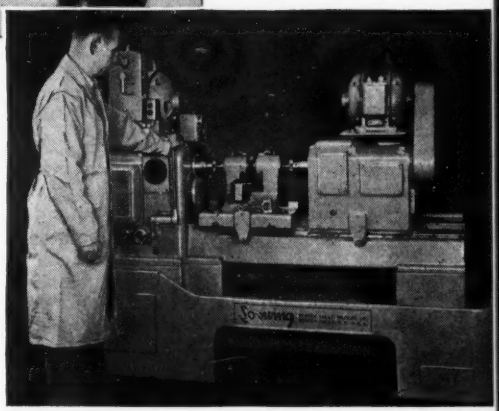
tion: The Model "CS" Lo-swing Automatic Drilling and tering Machine selected, is equipped with one fixed and adjustable drilling and centering head...a special auto-tically-operated holding fixture. Fixture, shown in illustra- is fitted with a locating stud which holds and locates the necting rod on the wrist pin hole. After mounting, it is ssary only to swing the large end of the connecting rod ween two hardened steel bushings which hold the rod end- and a depth stop positions the hole axially with the nfering cutters.

e air-operated clamping finger is automatically operated ugh an air valve controlled from the feed mechanism... is matically closed when the machine is started and auto-tically opened at the end of the machine cycle.

machine cycle is automatic; operator loads the parts and es the starting lever which also actuates the clamp. Cham- cutters advance in rapid traverse to the cutting position, down for feed and return in rapid traverse to the starting ion... clamp is automatically opened.

cipal production advantages are:

st. Operator cannot forget to clamp the work as it is auto-matically clamped.

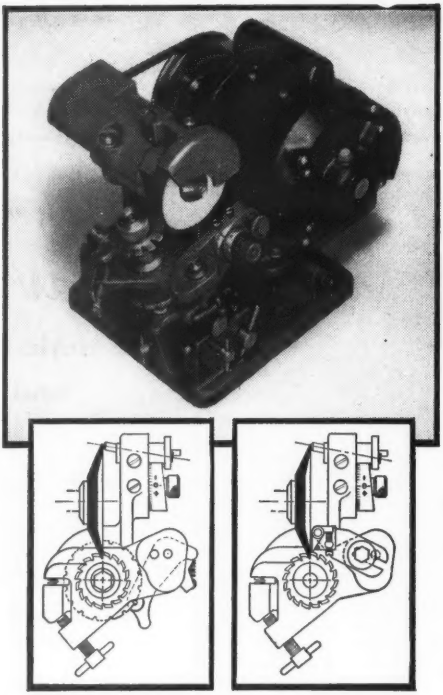


2nd. Operator is free to run other machines due to th rapidity of loading and unloading.

3rd. Amount of chamfer is constant. Stroke controlle by positive path cams.

4th. Production on average size connecting rod is 30 pieces per hour!!!

PRODUCTION COSTS ARE LOWER WITH Lo-swing



Line drawing at left shows index plate construction; right, pawl locating attachment.

WHY ***be satisfied with costly, inefficient sharpening methods?***

Send the coupon for complete information *on the most efficient method of sharpening small cutters ever designed.*

Please send me complete details on the Waltham Cutter Sharpener. MMS

NAME_____ TITLE____

COMPANY_____

STREET_____

CITY_____ STATE_____

WHAT ***machine do you use to sharpen your small formed cutters?***

The small, inexpensive Waltham Cutter Sharpener will save your large, expensive cutter grinders for use on larger-size, usually more expensive cutters.
(Cutters as small as a "dime" to those 3" diameter)

★

WHERE ***do you sharpen your small formed cutters?***

The Waltham Cutter Sharpener can be placed on any available bench—near your production machines, or in the tool crib. Often saves expensive steps and waiting.

★

WHO ***sharpens your small formed cutters?***

The Waltham Cutter Sharpener makes sharpening a mechanically controlled operation—permitting skilled and unskilled help to learn quickly to do an accurate sharpening job.

★

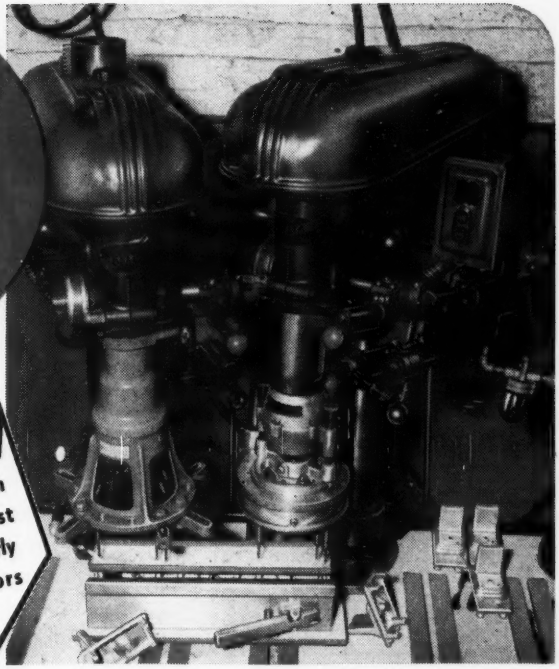
WHEN ***do you sharpen your small formed cutters?***

With a Waltham Cutter Sharpener handy, you'll sharpen cutters when you should, that is, *before they get dull* — not wait to cut those costly "few more" that result in accelerated cutter wear and greatly increased sharpening time and cost.

EDWARD BLAKE CO.
634 COMMONWEALTH AVE.
NEWTON CENTRE 59, MASS.

BLAKE TAP GRINDERS—FILTAIRE PORTABLE DUST COLLECTORS—AMERICAN TOOL HOLDERS—BLACK DIAMOND PRECISION DRILL GRINDERS—WALTHAM CUTTER SHARPENERS

EXTRA PROFITS COME FROM GROUPING OPERATIONS



ONE operator handles both drilling and tapping at almost DOUBLE the production formerly obtained by TWO operators

TWO operators drilling and tapping separately 6 holes, 7/64" in diameter, were producing 1500 to 1800 completed die cast parts an hour.

By grouping the two operations on one simple, inexpensive, tool-room-built unit, fed by Bellows "Controlled-Air-Power" Feeds (electrically synchronized) one man performs both operations and obtain almost double the production — 2500 to 3000 complete pieces per hour.

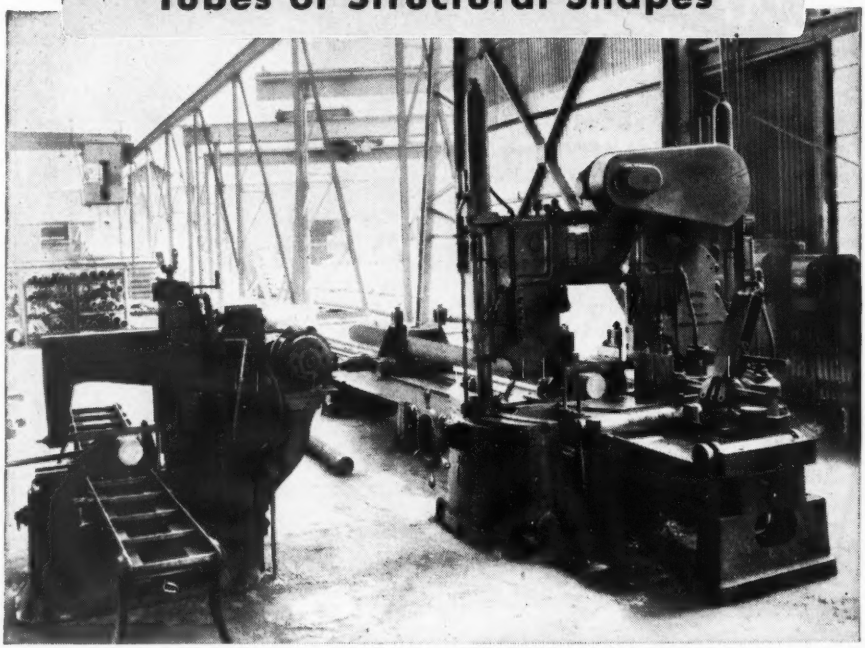
Multiple operations on the same work piece can often be grouped and handled automatically with inexpensive tool-room-built special purpose machines made by combining standard machine tool units with Bellows "Controlled - Air - Power" Feeds.

Bellows "Controlled-Air-Power" Feeds advance work or tools a pre-determined distance, under a pre-determined thrust. Traverse speeds are independently controlled and are adjustable to any desired degree. As many as fourteen electrically-controlled Bellows Feeds may be synchronized to operate automatically with a single work holding fixture.

See
"Controlled-Air-Power" In Action
Booth 1010
ASTE Exposition
Cleveland March 15-19

The Bellows Co.
AKRON, OHIO

Ideal for Oil Tools, Forging Bars, Tubes or Structural Shapes



The cutting-off department of Baash-Ross Company takes all sawing jobs as they come for they are equipped to quickly, easily and economically cut off steel of any size, type or shape. In the "oil tool" business you cut off about everything from drill rod to giant well drilling tools, from copper tubing to great 18 in. dia. heavy walled steel liner casings for wells. All can be quickly and accurately cut-off with the saws illustrated—a No. 9A MARVEL High Speed Hack Saw (Capacity 10″ x 10″) and a No. 18 MARVEL Giant Hydraulic Hack Saw.

Ask to have the local MARVEL Sawing Engineer analyze your sawing problems, make recommendations and quote prices.

WRITE FOR CATALOG.

ARMSTRONG-BLUM MFG. COMPANY

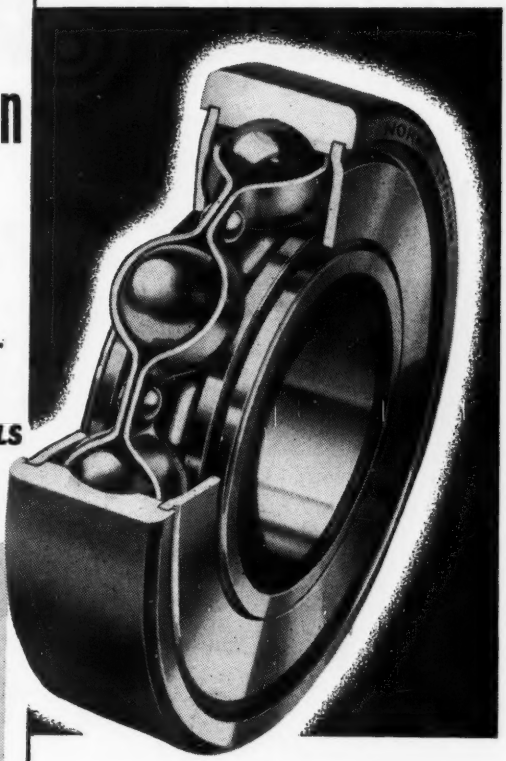
"The Hack Saw People"

5700 BLOOMINGDALE AVENUE — CHICAGO 39, U. S. A.

Metal Cutting MARVEL SAWS

Better Machines—Better Blades

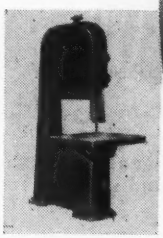
Norma-Hoffmann
PRECISION
Bearings



HELP
KEEP SHOPMASTER TOOLS
SMOOTH RUNNING

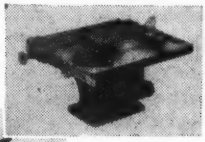


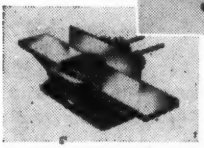
Shopmaster Drill Press
12 inch ½ inch chuck



Shopmaster Band Saw
12 inch tilting table

Shopmaster Jointer
6 inch, extra long table





Shopmaster Bench Saw
8 inch tilting table

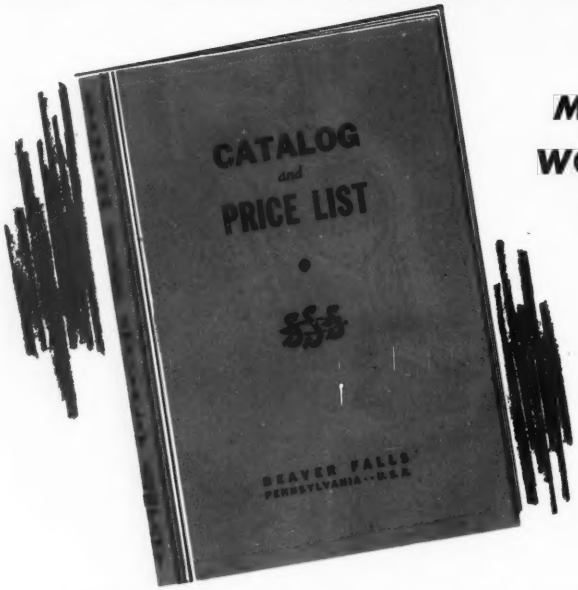
To maintain accuracy, rigidity, speed and dependability, **Shopmaster Inc., Minneapolis, Minn.,** employs *Norma-Hoffmann Precision Bearings* exclusively in its line of high quality "Shopmaster Tools" — a few of which are illustrated here. The reason, Shopmaster Engineers know from experience that Norma-Hoffmann Precision Bearings contribute to the performance of the machines . . . give years of trouble-free operation with minimum maintenance.

Whatever your bearing problems, it will pay you to investigate *Norma-Hoffmann Precision Bearings* for your designs. 108 distinct series and over 3,000 sizes are available to meet every load, speed and duty. Write for catalog.

NORMA-HOFFMANN BEARINGS CORPORATION
STAMFORD, CONNECTICUT

FIELD OFFICES: New York, Chicago, Cleveland, Detroit, Pittsburgh, Cincinnati, Los Angeles, San Francisco, Portland, Ore., Seattle, Phoenix

Order from this New Catalog



for

MACHINE KEYS
WOODRUFF KEYS
TAPER PINS
MACHINE RACKS

The new Standard Steel Specialty catalog contains complete listings of all types of Machine Keys, Woodruff Keys, taper pins and machine racks together with price lists.

You can check this catalog for

- **Standard Dimension of head of various sized Keys.**
- **Table of tapers showing increase for each half inch of length.**
- **Complete data sheet on Woodruff Key system.**
- **Weights of Standard Woodruff Keys.**
- **Drilling specifications for taper pins.**
- **Chart for checking machine racks.**

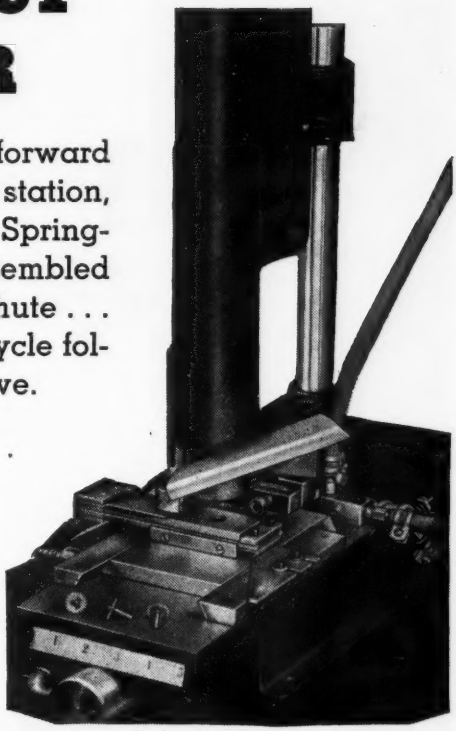
This catalog is a handy reference for your shop or plant to help you eliminate guesswork in ordering keys, pins and racks. Send for your copy today.

STANDARD STEEL SPECIALTY COMPANY
BEAVER FALLS PENNSYLVANIA
PLANTS • BEAVER FALLS, PA. • HAMMOND, INDIANA

HOW

to stake a Gear on a Shaft with

AIR IMPACT HAMMER



Vertical hopper moves forward on dovetailed slide to work station, releasing hammer blow. Spring-return motion ejects assembled parts through diagonal chute . . . 2500 per hour. Complete cycle follows one touch of foot valve.

Write for full facts on Air Impact Hammers.

GET CATALOG

Write for new catalog of Mead air operated devices and production ideas.



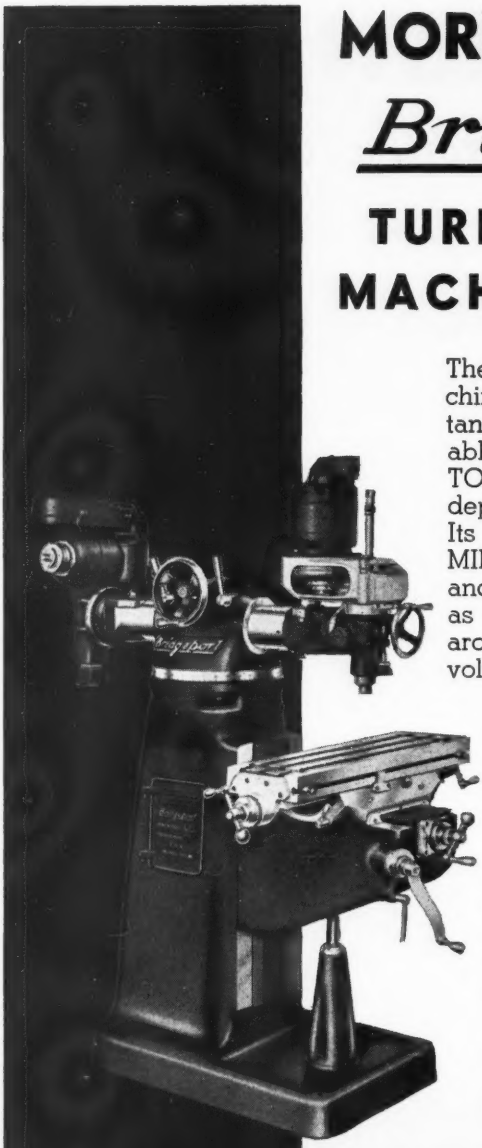
MEAD
SPECIALTIES COMPANY

4114 N. KNOX AVE., DEPT. AA-38, CHICAGO 41, ILL.

MORE THAN 9000

Bridgeport

TURRET MILLING MACHINES IN USE!



The Bridgeport Turret Milling Machine has won universal acceptance. It has proved a most valuable time and labor saver in the TOOLROOMS and in production departments of the largest plants. Its wide range and versatility in MILLING, DRILLING, BORING and SHAPING enable it to serve as the complete central machine around which all operations revolve in many small shops.

It will pay you to explore the possibilities of the "Bridgeport" in your plant.

WRITE FOR FOLDER

VISIT OUR BOOTH

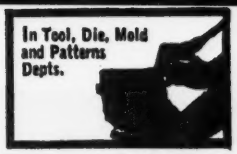
No. 1532 at the
TOOL ENGINEERS' SHOW
Cleveland Auditorium
March 15th to 19th incl.

where many new developments will be shown.

BRIDGEPORT MACHINES, INC.

52 REMER STREET • BRIDGEPORT, CONN.







VERSATILITY- WITH Finger-Tip CONTROL!



5 quickly interchangeable handpieces types — pencil sizes and larger — some with flexible wrist — see arrow.

FOREDOMS are TOPS
Here are 4 REASONS WHY:

1. Extra power and longer motor life. Motor not dwarfed to fit hand. 2. Correct handpiece size for deft, sensitive, finger-tip control. 3. Complete range of handpieces types. You fit the tool to job at hand. 4. Small handpiece size lets you get into those "hard-to-reach" places.

USE FOREDOMS to grind, polish, drill, rout, mill, saw, slot, clean, sand, etch, engrave, etc. FOREDOMS are profitable additions to all departments — production, maintenance, or tool. The FOREDOM line includes "hang-up" models as illustrated and easily-portable bench models. Foot rheostat is standard with most of them. **FOREDOMS** are still priced at O.P.A. levels.

Our Catalog N-21 gives you valuable information as to how you can profitably employ FOREDOMS. It will pay you to send for it.

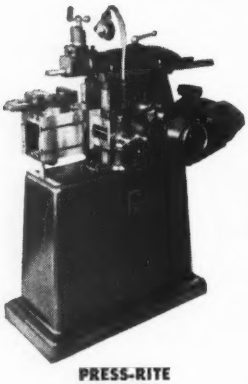
Foredom
FLEXIBLE SHAFT MACHINES
SOLVE MANY PRODUCTION AND MAINTENANCE PROBLEMS

FOREDOM ELECTRIC CO.,
27 Park Place, New York 7, N. Y.
Please send us your catalog No. N-21, showing the different uses of FOREDOM Flexible Shaft Machines.

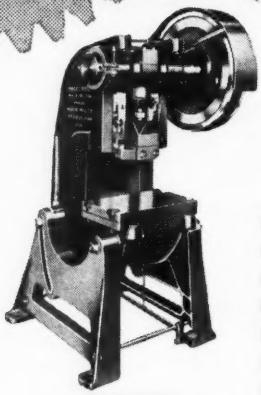
Name .....
Address .....
City and Zone..... State.....

See our *New and Improved* Machines at Booth 1109 ASTE Industrial Exposition

CLEVELAND, OHIO, March 15-19, 1948



PRESS-RITE SHAPERS

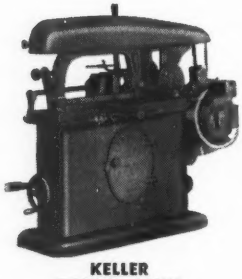


PRESS-RITE PRESSES

INTRODUCING 3 NEW MACHINES DISPLAYING 12 IMPROVED MODELS

An outstanding exhibit of 15 new and improved presses, shapers, and power hack saws that every quality, production, and cost-minded man will want to see. A wide range of capacities, each model having numerous new and improved features that provide

- **Increased Output**
- **Lower Costs**
- **Greater Safety**
- **Faster Set-ups**
- **Less Maintenance**
- **Improved Quality**
- **Greater Profits**



KELLER POWER SAWS

Be sure to personally inspect Press-Rite Presses, Shape-Rite Shapers, and Keller Power Hack Saws because these machines are widely used and highly recommended by large and small manufacturing plants, tool and die shops, small instruments and other manufacturers.

See your local dealer, or write Dept. M-38 for details.

Sales Service Machine Tool Co.

2363 UNIVERSITY AVE. ST. PAUL 4, MINNESOTA

exceptional tool life....

roughing and finishing

with
BARBER-COLMAN
CARBIDE TIPPED
REAMERS

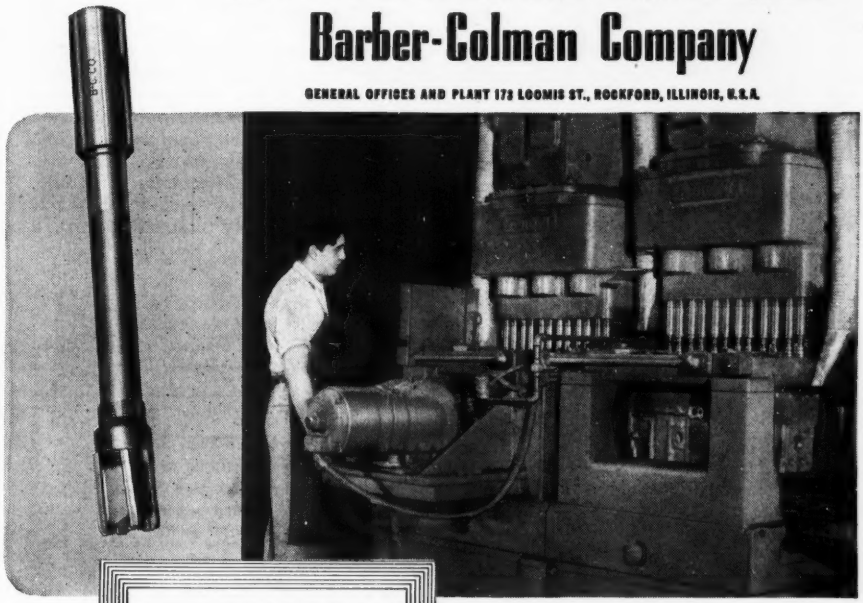
Vibration and end-play may vary from spindle to spindle on multiple reaming operations. Therefore, reamer design is even more important in controlling identical holes at each station. Barber-Colman Inserted Blade Reamers with carbide tips, used on this operation, are built with floating holders and magic-chuck drives. This permits reamers to seat themselves independently of machine conditions and produces accurate, straight, round holes.

Barber-Colman Reamers are made with irregularly-spaced blades to give smooth cutting action and finely finished work. This feature eliminates welts frequently caused by uniform spacing. Long tool life is assured with the rigid mounting provided by wedges and an adjusting collar which prevent any blade movement during reaming.

Consult Barber-Colman Reamer Engineers on your reaming problems. Quotations will be furnished on receipt of blue-prints and production requirements.

Barber-Colman Company

GENERAL OFFICES AND PLANT 173 LOOMIS ST., ROCKFORD, ILLINOIS, U.S.A.



JOB RECORD

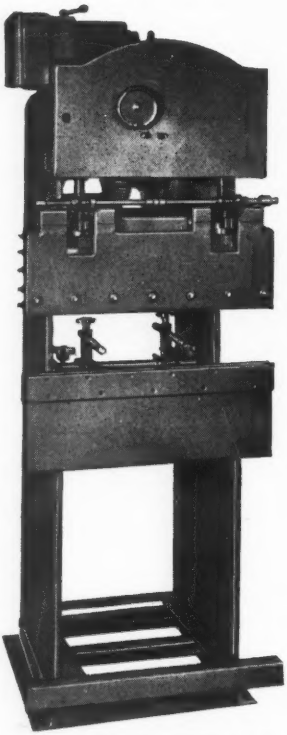
Operation — Ream valve tappet holes
Material — Gray cast iron

	Roughing	Finishing
Feed —	8.32" per min.	16.6" per min.
Speed —	81 SFM	36 SFM
Tool Life —	4000-5000 holes per sharpening	16000 - 18000 holes per sharpening

Tolerance — Size .990"/.991"

BARBER COLMAN
MODERN MACHINES DEMAND *Modern* CUTTING TOOLS

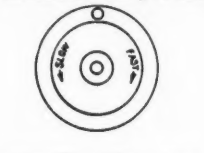
ALL-STEEL POWER PRESS BRAKES



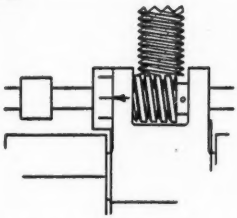
(24" machine illustrated)

NOW AVAILABLE IN THREE SIZES

To satisfy the growing demand for smaller, less expensive machines, three new, all-steel, welded press brakes have been developed by Knight Machinery Company, 1001-5 South Delaware Street, Indianapolis, Indiana. Features of the Knight Press Brakes include heavy welded construction, conveniently placed switches and speed control handles, ram position indicators, micrometer dials for out of parallel adjustment of ram and infinitely variable speed adjustment. Extra equipment is also available and consists of front operated gauges, extra width platen, light behind ram, dies and casters for easy moving. The machines are available in 24-inch x 18 gauge, 36-inch x 18 gauge, and 48-inch x 10 gauge capacities. All are sturdily built and designed for maximum production.



Hand wheel for speed adjustment and indicators for extreme ram positions.



Note cut of micrometer dial, making possible adjustments of one thousandth. Easily disengaged coupling allows fast ram parallel adjustment.

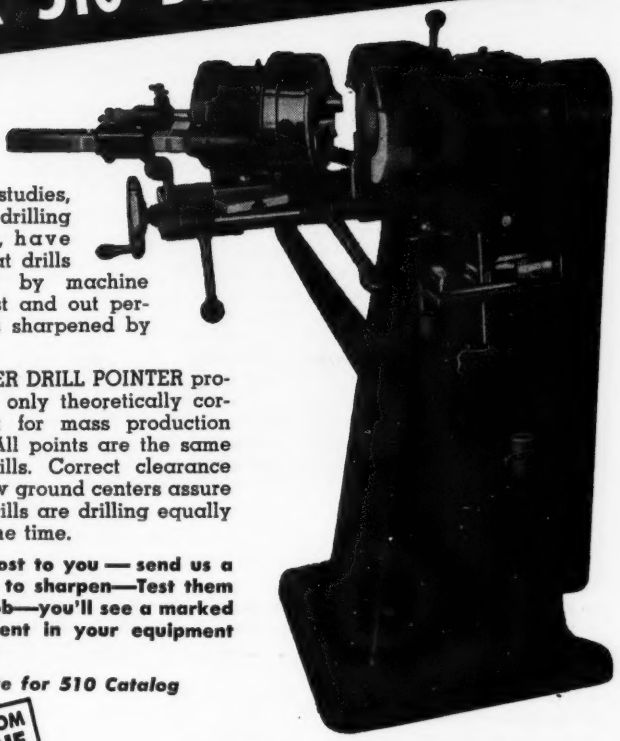
See this machine and our new 48" model at A.S.T.E. Industrial Exposition at Cleveland, Ohio, March 15 thru 19.



KNIGHT MACHINERY CO.

1005 SOUTH DELAWARE · INDIANAPOLIS 2, IND.

Drills last longer and drill better when sharpened on OLIVER 510 DRILL POINTER



Methods studies, taken on drilling operations, have proven that drills sharpened by machine will outlast and out perform drills sharpened by hand.

The OLIVER DRILL POINTER produces the only theoretically correct point for mass production drilling—All points are the same on all drills. Correct clearance and hollow ground centers assure that all drills are drilling equally at the same time.

Without cost to you — send us a few drills to sharpen—Test them on your job—you'll see a marked improvement in your equipment and tools.

Write for 510 Catalog

IMPROVE YOUR TOOLROOM
IT'S THE BACKBONE
OF PRODUCTION

OLIVER INSTRUMENT CO.

1430 E. MAUMEE ST.
ADIAN, MICHIGAN

OLIVER OF ADRIAN

AUTOMATIC DRILL GRINDERS
TOOL & CUTTER GRINDERS—DRILL
POINT THINNERS—TEMPLATE
TOOL GRINDERS—FACE MILL
GRINDERS—DIEMAKING MACHINES

New MICROMATIC
MECHANICAL MICROHONER MACHINE
Model 717



THE full benefits of Microhoning accomplishment for salvage, tool room and semi-production work are provided in this new all-mechanically actuated machine. It is designed to Microhone to desired standards a wide variety of types and sizes of bores from ½ to 4-in. in diameter up to 7-in. maximum lengths, with a minimum number of tools and fixtures.

It is small and compact, but sturdily built. The table is integral with the cast iron base; the head is adjustably supported on a round, rigid column providing accurate alignment.

Full working usefulness of the adjustable, positive stroke is assured by an extra manual liftout stroke. Cost of tooling is minimized, and complete operator control of tool expansion is possible because the adjusting head is mounted on, but does not rotate with the spindle.

Adaptability to parts of any material or type within the size range is assured by selection from six rotation and four reciprocation speeds.

Standard electrical equipment is located for quick service and maintenance accessibility.

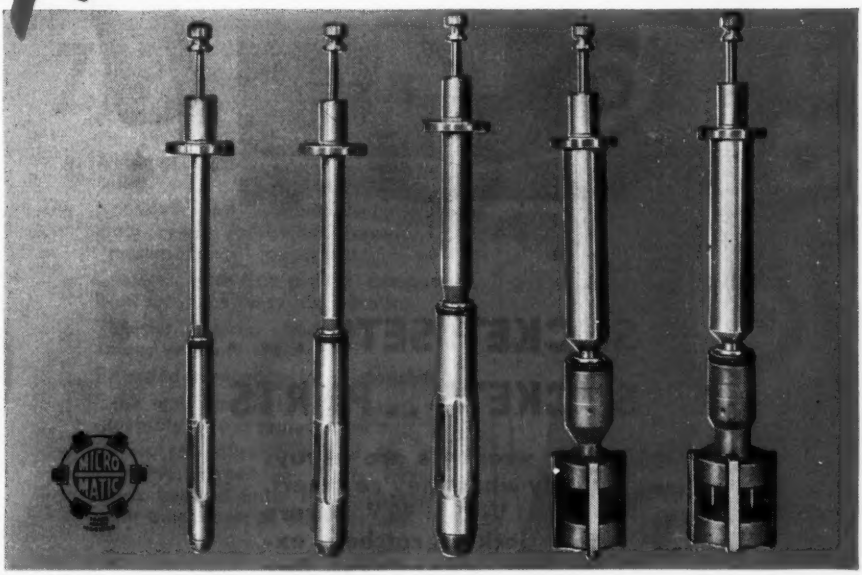
Specifications

- For bore diameters . . . ½ to 4-in.
- For bore lengths . . . Up to 7-in.
- Stroke . . . . . 6-in.
- Liftout . . . . . 3½ in.
- Spindle to table, max. . 24 11/16-in.
- Spindle to table, min. . . . . 7-in.
- Spindle to column . . . . . 11-in.
- Rotation speeds, r.p.m.
  1058-742-505-334-234-159.
- Spindle reciprocations per min.
  278-139-93-69.

Microhoning Machines, Microhoning Tools, Microhoning Fixtures, and Microhoning Abrasives **MICROMATIC**

District Field Offices: 1323 S. Santa Fe, Los Angeles 21, California. Phone: Tucker 3756 • 194 Delhousie St., Brantford, Ontario, Canada. Phone: Brantford 1128 • 616 Empire Bldg.,

New MICROMATIC
MICROMOLD* UTILITY TOOLS



To extend the usefulness of Microhoning to short run and odd lot production use, a set of five tools is now available which, with some extra sets of stoneholder assemblies, cover the range from 1-in. to 4-in. diameter work. They provide all the expansion and operating controls of former general service type tools, with some added improvements for more economical operation in general purpose use.

They use newly developed Micromold abrasive assemblies, in which the abrasive sticks are mounted in plastic, molded in graduated heights and shaped to simulate the conventional production tool stone and stoneholder assemblies. This reduces the number of wearing parts in the tool, and makes it easy to change the Micromold assemblies for any change in bore size being Microhoned.

Specifications

Diameter	Lengths	Micromold Sticks Sets	Stones set	Length
1" to 1¼"	2" to 6½"	2	4	1¾"
1¼" to 1⅝"	2" to 6½"	3	4	1¾"
1⅝" to 2"	2½" to 6½"	3	4	2¼"
2" to 2¾"	3" to 7½"	4	4	3"
2¾" to 4"	3" to 7½"	5	5	3"

*REG. U. S. PAT. OFF.

HONE CORPORATION 8100 Schoolcraft Avenue DETROIT 4, MICHIGAN

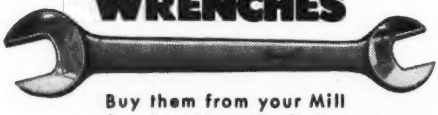
206 So. Main St., Rockford, Ill. Phone: Forest 1128 • 927A - M & M Bldg., P. O. Box 981, Houston 2, Texas. Phone: Preston 2381 • Room 514—129 Church St., New Haven 10, Conn. Phone: New Haven 7-0035.



SOCKET SETS . . .
SOCKETS . . PARTS

Your wrenches are always handy when they're in sets. 3/8" - 1/2" - 3/4" Square drive Sockets, ratchets, extensions, speeders, flex handles in rugged steel boxes. Literature gladly sent.

BILLINGS
WRENCHES



Buy them from your Mill Supply or Hardware Dealer

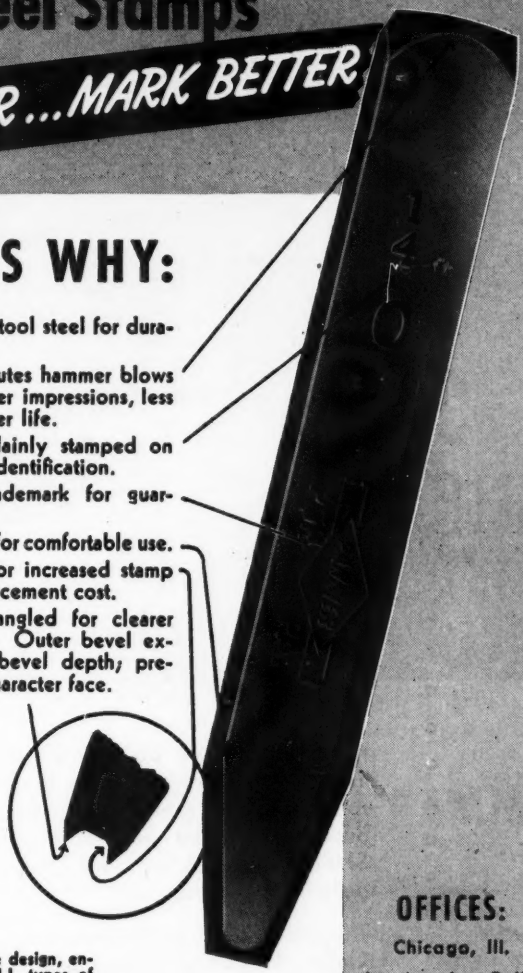
THE BILLINGS & SPENCER CO., HARTFORD 1, CONNECTICUT, U. S. A.

Pannier Steel Stamps

LAST LONGER ... MARK BETTER

7 REASONS WHY:

1. Made of high tensile tool steel for durability.
2. Rounded head distributes hammer blows more evenly for better impressions, less "mushrooming," longer life.
3. Character and size plainly stamped on front for quick, easy identification.
4. "Master Marker" trademark for guaranteed replacement.
5. Rounded shank edges for comfortable use.
6. Extra metal in fillet for increased stamp durability, lower replacement cost.
7. Bevels scientifically angled for clearer stamping, longer life. Outer bevel extends beyond inner bevel depth; prevents breakdown of character face.



Pannier "Master Marker" Steel Stamps are soundly engineered and tested under "actual service" conditions . . . for a long life of clean-cut, legible impressions. Write for complete listing of styles and sizes.

Pannier Bros. are specialists in the design, engineering and manufacture of ALL types of marking equipment. Find out how Pannier can serve your marking needs. Write today for recommendations.

OFFICES:

Chicago, Ill.
Los Angeles, Calif.
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MASTER PANNIER MARKERS

PANNIER BROS. STAMP CO.

202 PANNIER BLDG., PITTSBURGH 12, PA.



SHELDON

T-S56 PRECISION LATHES

Why wear out big equipment on little jobs . . .

It costs money to operate big lathes—ties up costly equipment, takes more expensive tooling, more power, more floor space, requires a more experienced operator. It's just good business to have smaller, handier, faster, lathes like the SHELDON T-S56 for much of your work, and save the difference in operating cost.

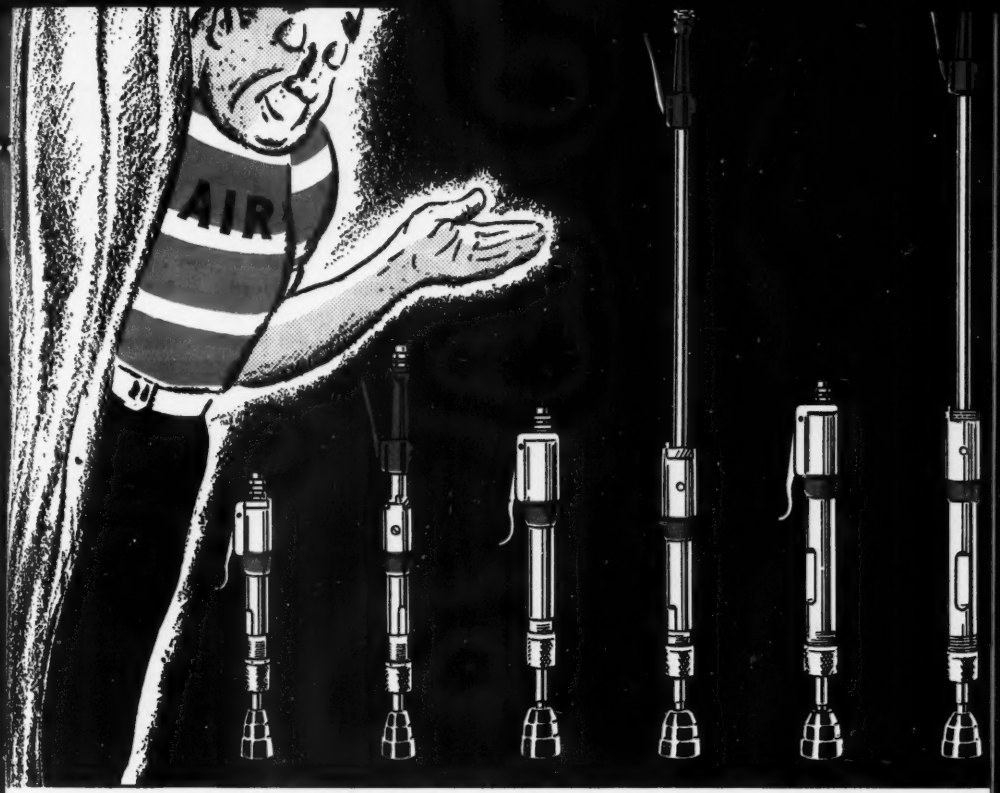
The SHELDON T-S56 Precision Lathe has 11¼" Swing, 1" Collet Capacity (large 1⅜" hole thru spindle) and is made permanently accurate with Zero Precision taper roller bearings.

Write for Bulletin

BOOTH 935—A.S.T.E. SHOW
CLEVELAND, MARCH 15-19

SHELDON MACHINE CO. Inc.

Manufacturers of Sheldon Precision Lathes • Milling Machines • Shapers
4250 N. KNOX AVENUE • CHICAGO 41. ILLINOIS. U. S. A.



Introducing THE NEW ROTOR RAMMERS!

HERE'S the new line of Rotor Powerplus Sand Rammers . . . six speedy, light-weight performers . . . to give you *more uniform casting molds, faster.* Step right up and see how they can *cut your costs.*

Write for free copy of Bulletin 32.



Call the Rotor Analyst for a free demonstration with the proper model of these new rammers to match your work. See him use a mold hardness tester to show how the new Rotor Rammer improves the density and uniformity of your molds. Try the rammer yourself and see how its sharp, snappy blow saves time by putting the sand down faster.

AIR O'TOOL

GRINDERS

RAMMER

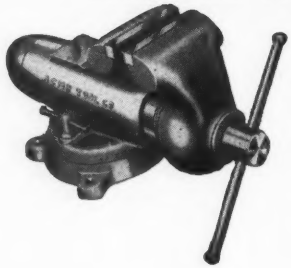
THE ROTOR TOOL CO.

CLEVELAND, OHIO

UNBIASED ANALYSIS OF PORTABLE TOOL PROBLEMS

GREATER GRIPPING POWER

Long-Life ACME BENCH VISES have —



Short distance from center of spindle to jaws . . . Flange nut located away from the Thrust Head . . . Body totally enclosed . . . Horizontally anchored nut . . . Precision Threaded Steel Spindle . . . Swivel Base . . . Interchangeable Ground Jaws.

MADE IN MANY SIZES TO FIT YOUR REQUIREMENTS

Acme Combination Pipe and Bench Vises with same outstanding features available with 4½" wide jaws. Holds pipe from ⅛" to 3½".

DEPENDABLE ACCURACY!

INSPECTION TOOLS made of MEEHANITE Metal are designed to fill your various Inspection and Checking needs in the Inspection, Tool Room and Production Departments. Sturdily constructed to give you reliable, accurate service.

Surface Plates — Box Parallels

Slotted Angle Plates

Universal Right Angles

Flat Parallels — Lapping Plates

Toolmakers' Knees

Straight Edges



SURFACE PLATES RESCRAPED—LIKE NEW

Write for Literature—Prompt Delivery

PRECISION PRODUCTION TOOLS

ACME TOOL COMPANY

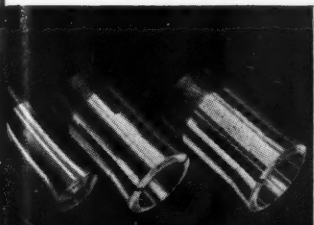
69 WEST BROADWAY **NEW YORK 7, N. Y.**

Visit HARDINGE ELMIRA, N.Y. Exhibit Space No. 1214

At the A. S. T. E. Cleveland Exposition, March 15-19

You will see

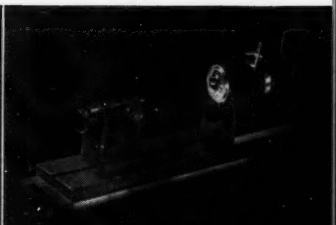
Precision Accessories for Tool Rooms



HARDINGE LATHE COLLETS

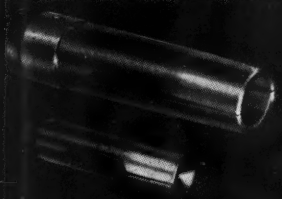


HARDINGE-SJOGREN SPEED COLLET CHUCKS



HARDINGE COLLET INDEX FIXTURES

and Precision Accessories Screw Machine Departments



HARDINGE FEED FINGERS



HARDINGE COLLETS



HARDINGE MASTER FEED FINGERS



HARDINGE GROUND CIRCULAR CUT-OFF TOOLS



HARDINGE COLLET INDEX FIXTURES

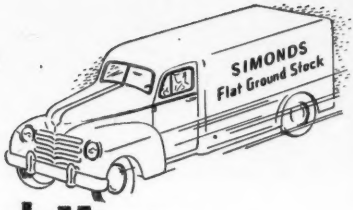


HARDINGE MASTER COLLETS AND PADS

HARDINGE BROTHERS, INC., ELMIRA, N. Y.

PERFORMANCE HAS ESTABLISHED LEADERSHIP FOR HARDINGE

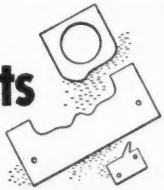
Get Delivery Today...





Save Time and Money...

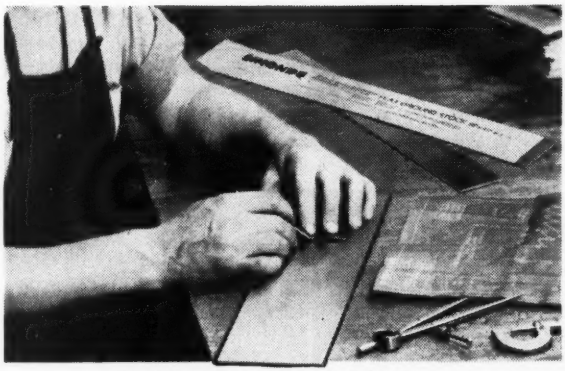
Make your own Dies, Jigs and Parts



HERE'S A COST-CUTTING *NATURAL* that you can cash in on *without any delay.* Get Simonds "Red Streak" Oil Hardening Flat Ground Stock from your Industrial Supply Distributor. He has it in all standard sizes . . . uniformly annealed for easy machining and proper hardening (with directions on the individual envelope) . . . cut to 18" length . . . accurately ground to standard thicknesses and widths . . . with square edges . . . and with smooth surfaces for accurate layout work.

No grinding to size. Just cut it . . . with Simonds Metal-Cutting Band Saws . . . to your own designs of punches, dies, gages, jigs, fixtures, templates, stamps, shims, small machine parts, and other items which you now have to order and wait for. Call your Distributor *today.*

BRANCH OFFICES: 1350 Columbia Road, Boston 27; Mass.; 127 S. Green St., Chicago 7, Ill.; 416 West Eighth St., Los Angeles 14, Calif.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Ave., Portland 4, Ore.; 31 W. Trent Ave., Spokane 8, Washington. *Canadian Factory:* 595 St. Remi St., Montreal 30, Que.



SIMONDS ALSO MAKES



Circular Metal-Cutting Saws (Solid-Tooth, Inserted Tooth, Segmental)



Metal-Cutting Band Saws



"Red End" Hacksaws



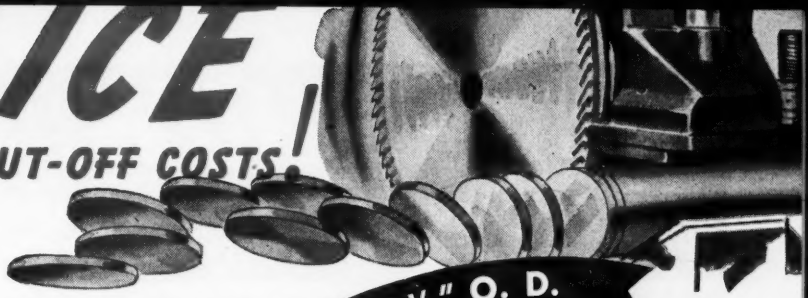
"Red Tang" Files

PLUS A WIDE LINE OF TOOLS FOR CUTTING WOOD, PAPER, PLASTICS



"When you use Simonds you stay in the Highlands . . . of *consistent* cutting efficiency"

SLICE THOSE CUT-OFF COSTS!



THIS CASE STUDY TELLS THE *Difference!*

SAWING SAE 1020, 3 1/8" O. D.

Alternate method cut off 260 pieces for one of blade. Blade "done for"; no resharpening possible. Total tool cost per cut off piece, exclusive of labor and overhead—$.0174. Total tool cost per 100,000 pieces—$1740.00.

1¾¢ PER CUT



Important. Labor and overhead for the "alternate method" far exceeded those for the Triple-Chip Method.

★ ★ ★

Other Advantages. The Motch & Merryweather Triple-Chip Method uses circular sawing machines which have fewer wearing parts in action. Blade cost is low; blade life is long. Blades cost next to nothing to maintain; can be resharpened again and again. Production sawing is four times as fast, yet ends are square, smooth, accurate to length. Less floor space is required. Savings, as outlined above, are enormous.

Which method is better? Write for full details today.

See us
at Booths 616-618
and 715-717,
A. S. T. E. Exposition,
March 15-19.



Motch & Merryweather No. 3 Circular Sawing Machine for stock up to 10-5/8"

Only M & W builds ALL 3: CIRCULAR SAW, SAW BLADE, BLADE GRINDER

THE MOTCH & MERRYWEATHER MACHINERY CO.

PENTON BUILDING • CLEVELAND 13, OHIO

AT YOUR COMMAND • AN UNPARALLELED EXPERIENCE IN CIRCULAR SAWING

HERE'S HOW...

TO GET MORE PRODUCTION FROM EXISTING MACHINES

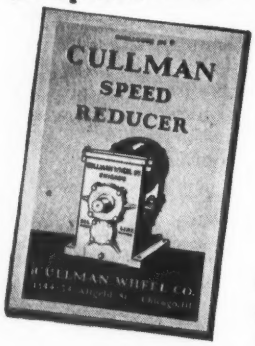
CULLMAN *Speed* REDUCERS

ADAPT ELECTRIC MOTORS TO SLOWER OPERATIONS

New Low-speed Range

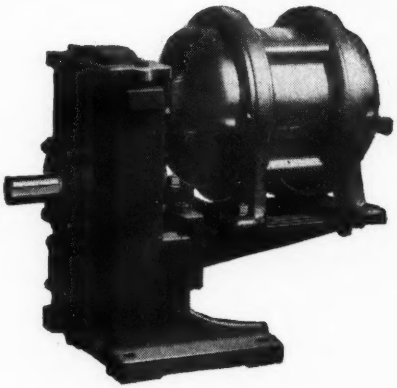
For Motors ¼ To 15 h. p.

Fit Speeds To Job Needs



WRITE FOR YOUR COPY...

Get the facts! Ask for this helpful booklet which contains much useful data and facts for buyers. It describes Cullman Speed Reducers and other Cullman products.

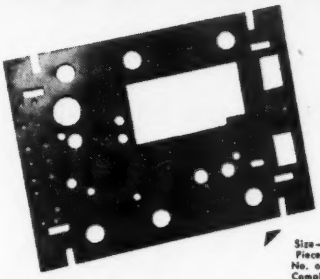


Any standard electric motor can be adapted for many new uses by adding a Cullman Speed Reducer. Compact, dependable, efficient—Cullman Speed Reducers are made in single and double reduction types. Cullman units are equipped with Helical Gears, Roller Bearings, Sprockets and Roller Chains all operating in oil. *Installation is simplified by convenient motor mountings.*

CULLMAN WHEEL COMPANY

1352 V. Altgeld Street — Chicago 14, Illinois

TEMPLATES *PLUS A* WIEDEMANN TYPE R-44 TURRET PUNCH PRESS



Size—17¾" x 22½"
Pieces Required—150
No. of Openings—127
Complete Piercing Time
Per Piece 11.3 minutes

HOW DO THESE TIMES COMPARE WITH YOUR SHOP PRODUCTION?

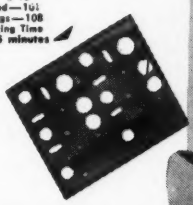


Size—10⅛" dia.
Pieces Required—100
No. of Openings—69
Complete Piercing Time
Per Piece 8.3 minutes



Size—6⅜" x 13⅜"
Pieces Required—90
No. of Openings—178
Complete Piercing Time
Per Piece 9.6 minutes

Size—10¼" x 12"
Pieces Required—101
No. of Openings—108
Complete Piercing Time
Per Piece 8.5 minutes



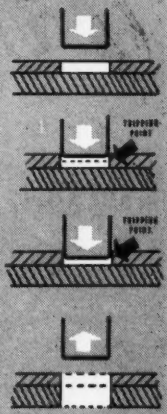
NOTE: Fatigue time not included.

Whether you use templates now or not it will pay you to WRITE FOR WIEDEMANN BULLETIN 44 TODAY!

WIEDEMANN
MACHINE COMPANY
4219 Wissahickon Ave., Phila. 32, Pa.

MAKE SHORT RUN PIERCING A LOW COST OPERATION IN PRODUCTION OF CHASSIS, PANELS, MOUNTINGS AND SIMILAR WORK

You can't damage a template during piercing

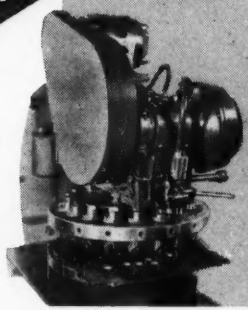


The punch floats above the template. An adjustment permits raising or lowering the punch to suit thickness of work.

The hand lever lowers the punch into the template. The punch is already in the template but has not reached the tripping point.

The punch is shown at the tripping point. At this point the Micro-Switch is actuated and the press trips, piercing the blank.

The hole is pierced in the blank, the punch is on its upward stroke. Material is stripped off the blank and the punch will ride down to float over the template, ready for the next cycle. . . .



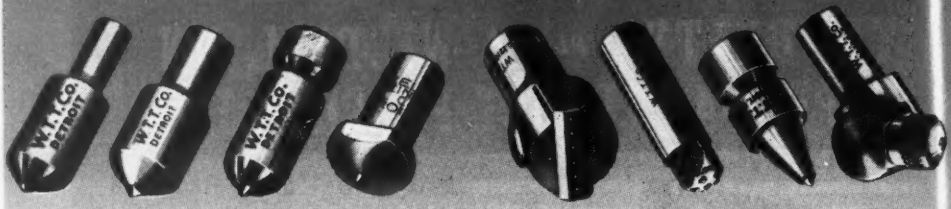
. . . at a speed of 100 strokes per minute.

STANDARD WHEEL DRESSING TOOLS

LANDIS CINCINNATI CENTERLESS NORTON HEALD

SPECIAL FEATURE DRESSING TOOLS

STRAIGHT-SIX IMPREGNATED EVERSHARP TRUCO

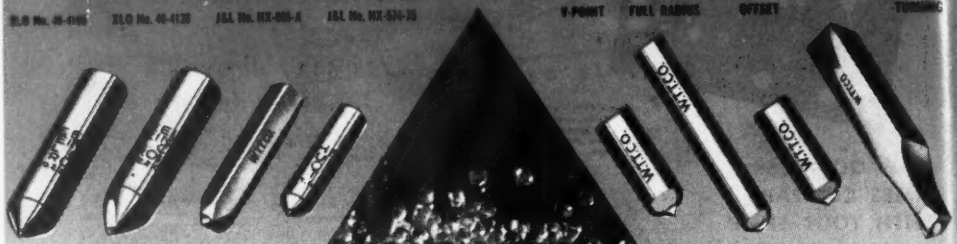


THREAD DRESSING TOOLS

B.&S. No. 48-4105 ILG No. 48-4120 J&L No. HX-005-A J&L No. HX-534-35

TURNING AND BORING TOOLS

V-POINT FULL RADIUS OFFSET TURNING





GAGE TOOLS

SPECIAL SHEFFIELD PRATT PRATT & WHITNEY

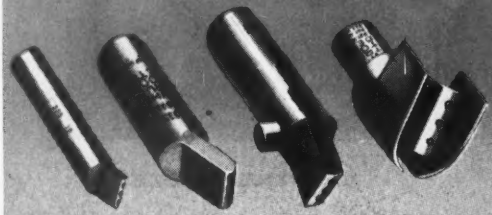
RADIUS FORMING TOOLS

No. 1 No. 2 No. 3 No. 4



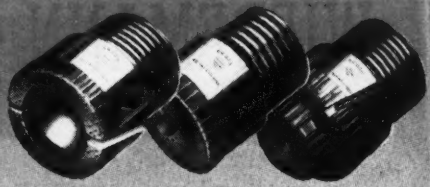
PATENTED TRU-LINE TOOLS

333 333 T15 SAL 15 333 VERTICAL SWIVEL TROFLO HOOD



DIAMOND DRILL BITS

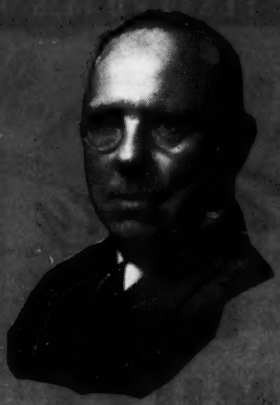
CORE BLAST HOLE PILOT



"We can guarantee our diamond tools because they are engineered to the job."

Harvey D. Kelley

PRESIDENT



THIRTY-SEVEN YEARS AGO, when Wheel Trueing started in the diamond business, there were no standards of diamond tool value and guarantees were specifically avoided.

Wheel Trueing pioneered the idea of studying the job to be done, engineering the tool and the diamond to the job and guaranteeing satisfactory performance.

Consequently, for many years, Wheel Trueing customers have enjoyed the efficiency and the economy of using diamond tools scientifically matched to their work.

Our Engineering Data Sheets for supplying job information and our booklets on many types of Standard and Special diamond tools are yours for the asking. We invite your inquiries.

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3200 W. Davison Avenue • Detroit 6, Michigan

WHEEL TRUEING TOOL CO. OF CANADA, LTD.
575 Langlois Avenue • Windsor, Ont., Canada

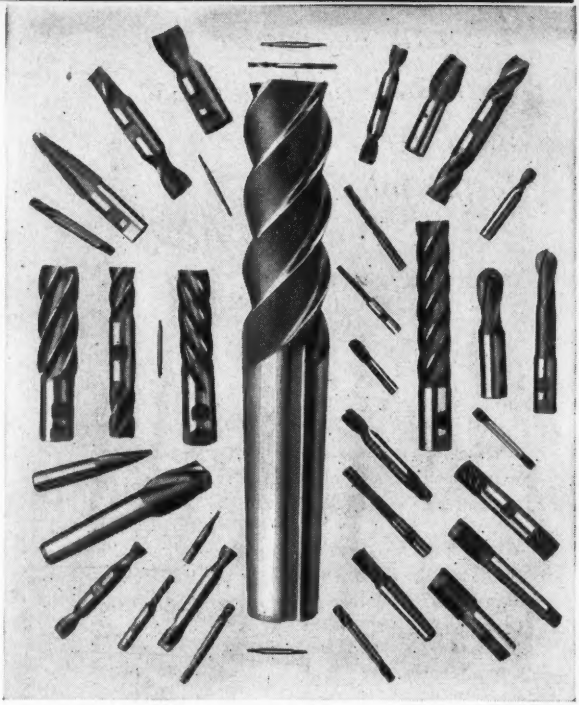
THE ADAMANT TOOL COMPANY
Eastern Division of Wheel Trueing Tool Co.
33 West Street • Bloomfield, New Jersey

General Offices & Plant, Detroit, Michigan



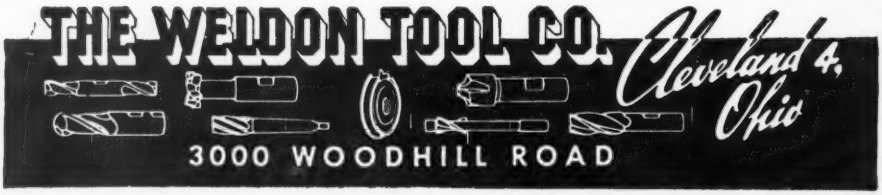
YESTERDAY'S PIONEER • • • TODAY'S LEADER

Quality END MILLS



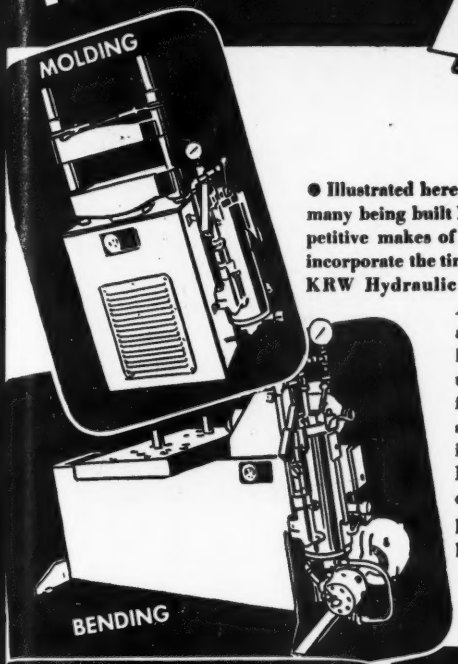
When you think of end mills, large or small, stock or special, always think of WELDON quality end mills. WELDON was the pioneer in the end mill field, establishing leadership, which it still maintains, by originating features which vastly improved performance and contributed to longer life and dependability of these important tools. The assortment of end mills and holders is complete with a wide range of sizes and styles to meet every requirement.

Visit Booth 205, Tool Engineer's Industrial Exposition, at Cleveland, the week of March 15th, and see the complete assortment of WELDON End Mills, Holders, Sharpening Fixtures, Special Form Tools and many new accessories.

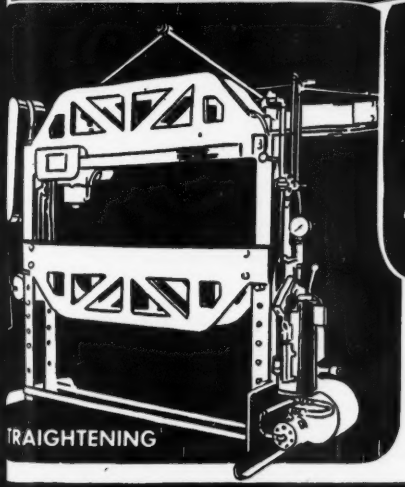


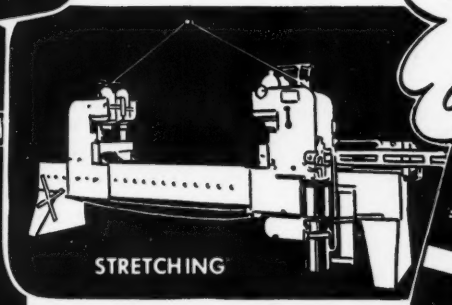
Name the JOB!

There's a KRW PRESS that can do it BETTER... for LESS



● Illustrated here are four KRW Hydraulic Press adaptations that are typical o many being built by KRW today. All are priced from 30 to 200% less than com petitive makes of comparable tonnages or capacities. All are motor-driven an incorporate the time and production proven features that have made the standar KRW Hydraulic Arbor Presses... *the most widely used press of their type i America.* Take the KRW Sliding Head Straightening Press a an example. This type KRW Press has been effecting tremendou labor savings in fabricating plants where plate must be "true up" before it is processed or fabricated. The heavy, hand metho formerly used was archaic and very costly by comparison. Th same story holds true of KRW Stretcher-Levellers, KRW Blank ing and Forming Presses, KRW Compression Molding Presse KRW Bending Presses and many others. To save your time an ours, tell us your problem in terms of what you want to accom plish. We'll give you an answer and furnish literature that pertinent to your needs. Mail the coupon now.





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K. R. Wilson, 215 Main Street, Buffalo 3, N. Y.

Please send your catalog. We are particularly interested in your

Bending Presses ☐ Compression Molding Press ☐

Straightening Press ☐ Stretcher-Leveller ☐ Forming and Blanking Press ☐

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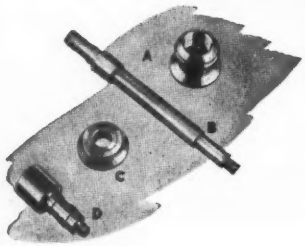
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HARLEY-DAVIDSON MODERNIZES ITS SHOP WITH . . .



GREENLEE
SIX-SPINDLE AUTOMATICS



Ed Rathsack, screw machine foreman at Harley-Davidson Motor Co. of Milwaukee for 20 years, says: "I've been on screw machines for forty years. We got our first Greenlees just before the war and now have 16 of them. They have proved out very well. Set-ups can be made quickly and it is easy to duplicate previous experience. We have a lot of short and medium-run jobs of 800 to 10,000 pieces and set-up efficiency is a big help when you are trying to keep costs down on work of this kind. Standardized tooling helps, too. We appreciate the low investment in interchangeable cross-slide cams, and we like the quick setting on the main tool slide. For our kind of work, the Greenlees are good machines." (Mr Rathsack is the man with the galluses at the first machine — a 2" Greenlee Six — in the picture above. Harley-Davidson Motor Co. manufactures a widely-known line of Motorcycles, Servi-Cars, and Package Trucks.)

SAMPLES OF MEDIUM AND SHORT-RUN WORK AT HARLEY-DAVIDSON . . .

(A) Upper Head Cone Seat, C1118 stock, run on a 2" Greenlee in lots of 6000. (B) Armature Shaft, C1137 stock requiring 7½" feedout; made 400% faster on Greenlee than by previous method. (C) Starter Clutch, NE8617 stock, run on a 2" Greenlee in lots of 5000. (D) Rear Wheel Brake Operating Shaft, NE8617 stock, run on a 1⅜" Greenlee in lots of 7000 with a time of approximately 20 seconds per piece.

PRODUCTION MACHINERY
GREENLEE

WRITE FOR MORE FACTS
Send for this 20-page book describing the Greenlee timesaving and cost-saving features.

SEE MOVIE
Ask to see our 40-min. sound movie showing all details of building a Greenlee "6"



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1883 MASON AVENUE, ROCKFORD, ILLINOIS

MULTIPLE-SPINDLE DRILLING, BORING, TAPPING MACHINES • AUTOMATIC SCREW MACHINES • AUTOMATIC TRANSFER PROCESSING MACHINES

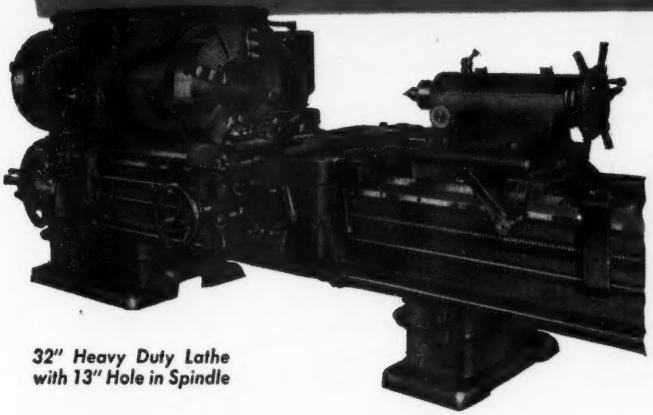


SAVE TIME-CUT COSTS

DO IMPORTANT MACHINING JOBS IN 1/2 TO 1/7 THE TIME! . . ON A

HYDRATROL LATHE

(Large Hollow Spindle Type)



32" Heavy Duty Lathe with 13" Hole in Spindle

4 sizes - 18" to 36"

Small, 18" up to 7-1/8" Hole

Medium, 25" up to 12-1/8" Hole

Large, 32" up to 16-1/8" Hole

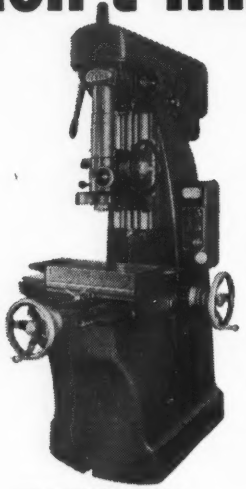
Large, 36" up to 16-1/8" Hole

LEHMANN is the Leader in Progressive Engine Lathe Design!"—say hundreds of machine shop superintendents. These men who know say that LEHMANN has the most complete line of Large Hollow Spindle type lathes manufactured. It's a line that incorporates all the famous features of the Hydratrol headstock, and the ruggedness and power of LEHMANN design . . . No wonder that Hollow Spindle HYDRATROLS, in hundreds of plants, are setting new records for speed, accuracy, dependability, economy. *You'll* do it better on a HYDRATROL! Send us prints, for a specific, time-and-money-saving recommendation.

Lehmann MACHINE COMPANY

OUGHTEAU AT GRAND . . . ST. LOUIS 3, MISSOURI

Mechanize Your Toolroom don't miss ASTE booth 1401



NO. 2 MOORE JIG BORER

You'll see the new, larger Moore Jig Borer

You'll see for yourself why we call it "The Last Word" in jig borer construction and operation. Here are just a few of the features:

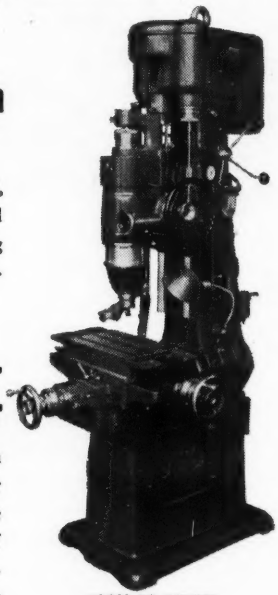
Holes up to 5" in mild steel or cast-iron.
Accurate lead screw settings within .0001".
Infinitely variable spindle speeds, 90 to 2400 RPM.
3 Power Feed ratios.
Centralized spindle control panel; 1-shot lubrication.
Disconnect clutch for easy indicating.



NO. 1 MOORE JIG BORER

And the No. 1 Model with 1,000 satisfied users

Still ideal buy for many situations where small, accurate jig borer fills required prescription. We'll demonstrate many production and tool making jobs which it can perform. Available for immediate delivery.



MOORE JIG GRINDER

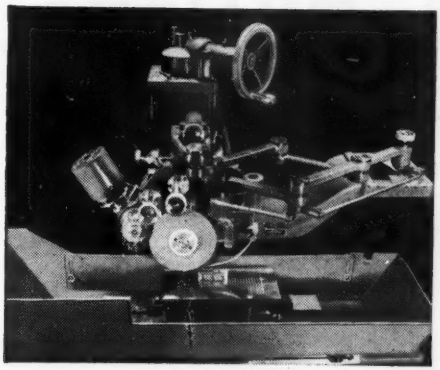
You'll see how to relocate and finish-grind holes with the Moore Jig Grinder

We'll show you how you can eliminate hours of checking on the bench and surface plate to correct holes in hardened parts. The Jig Grinder relocates and finish-grinds straight or tapered holes in ⅓ to ¼ the time required by conventional methods. You'll understand why hundreds of Jig Grinder users report, "We don't know how we would get along without it." Also available for immediate delivery.

Add a MOORE to

JIG BORERS · JIG GRINDERS · PANTO-CRUSH WHEEL DRESSERS

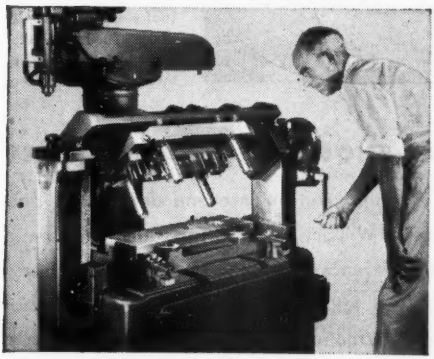
Moore Exhibit to Feature '48 cost-cutting equipment



MOORE PANTO-CRUSH WHEEL DRESSER

You'll see how to combine roll-crushing and diamond-dressing in a single machine

We'll demonstrate to your complete satisfaction how this 2-in-1 machine speeds form-grinding and cuts costs... how you can easily switch from one method to the other... how it eliminates the setting up of complex attachments and how it takes the skill out of the job.



MOORE DIE FLIPPER

You'll see the startling new diemaker's tryout and assembly machine

Without physical effort one diemaker can now perform all the operations of die assembling: take apart, turn over, drill, tap and try out. It will take apart and flip over a die set 20" x 40" with 12" shut height, pins engaged in bushings 4". This has been called the most important machine tool innovation of the postwar period. See it for yourself.



HAVE YOU BOUGHT YOUR COPY OF "PRECISION HOLE LOCATION"?

Over 5,000 copies of this valuable book on tool-making practices have been sold to date. Available at special price of $3 in U.S.A.; $3.50 outside U.S.A. 448 pages, over 400 illustrations. 184 pages of Woodworth Coordinate Location Tables from 3 to 100 holes. Send check or money order to Moore Special Tool Co., Inc., Bridgeport 7, Conn.

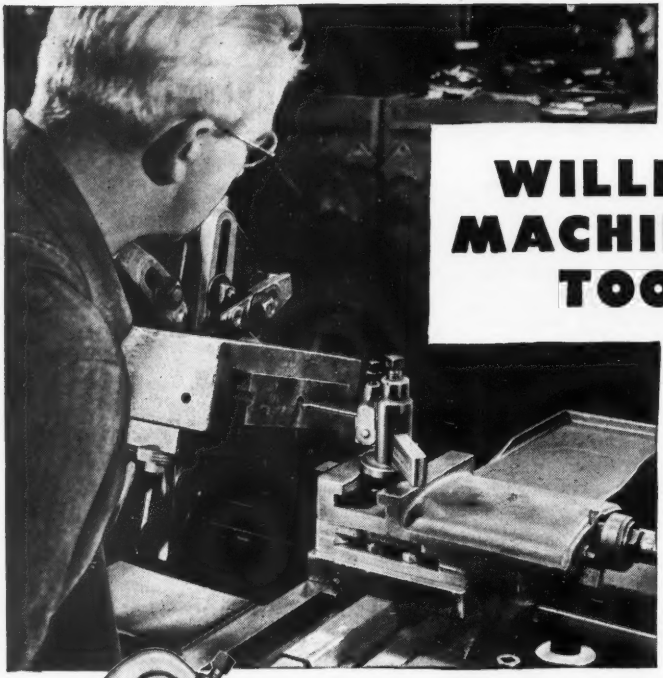
You'll see the most complete set of hole location accessories

Yes... You'll see plenty in ASTE Booth 1401—Make a note of it! March 15-19, Cleveland Auditorium.

MOORE SPECIAL TOOL CO., INC., 730 UNION AVENUE, BRIDGEPORT 7, CONN.

YOUR Toolroom

DIE FLIPPERS • COMPLETE LINE OF HOLE LOCATION ACCESSORIES



WILLIAMS MACHINISTS' TOOLS

Williams Light, Boring-Tool Holder. A handy and economical tool for light boring, internal threading and turning.



REDUCE SHOP & TOOLROOM COSTS

The fine design, convenience and dependable performance of Williams Drop-Forged Tools have earned them a preference by experienced machinists everywhere. They will help you produce *better* work at *lower* cost. Write for your copy of "Williams Machinists' Tools"... a 36-page booklet fully describing Williams' line of Tool Holders, Lathe Dogs and "C" and Strap Clamps.

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OPEN END, BOX, ADJUSTABLE AND RATCHET WRENCHES; DETACHABLE SOCKETS AND SETS; IMPACT SOCKETS; TOOL HOLDERS; LATHE DOGS; "C" CLAMPS; CHAIN PIPE TONGS AND VISES; FLANGE JACKS; PLIERS; SCREWDRIVERS; PUNCHES AND CHISELS; SOFT FACED "HOPLAPLEX" TIPPED HAMMERS; HOIST HOOKS; EYE BOLTS; ROD ENDS; CRANK AND BALANCE HANDLES; THUMB SCREWS AND NUTS.

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STEEL BARS and SHAFTING ...ready to go



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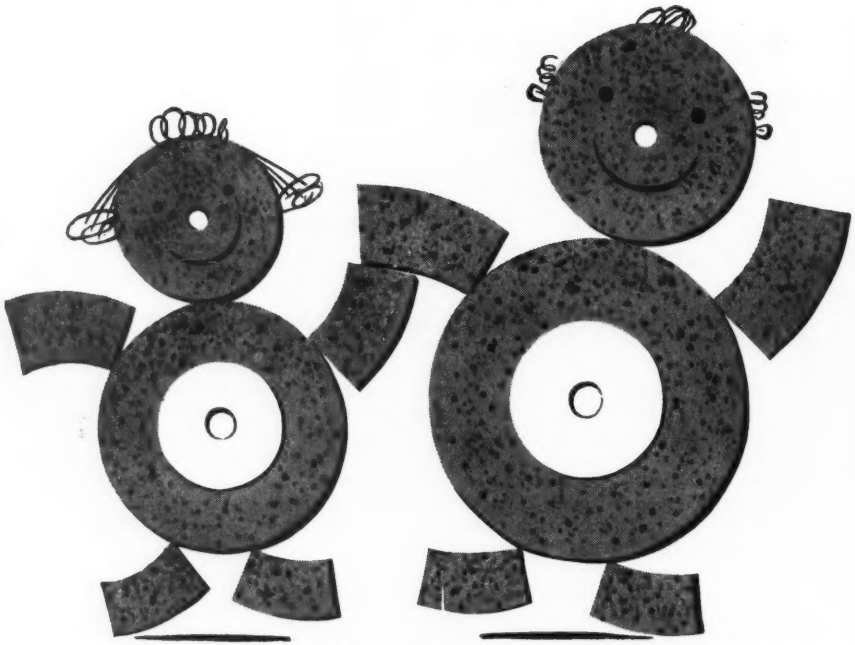
. . . has rebuilt his complete classified stocks of cold finished steel bars and shafting. Now—*today*—he's the man to turn to for *all* your needs. His convenient warehouse is filled with the sizes and shapes most used in your territory—and his hustling organization is trained and equipped for fast service.

Keep in close touch with him . . . save time by making his stocklist your inventory . . . save money by using his warehouse as your stockroom. And, advise him *now* of your future needs so that he *always* can have the steel bars you need —*ready to go.*

REPUBLIC STEEL

Republic UNION COLD DRAWN STEELS

We're



well-rounded...

Resin-bonded wheels have been added to the Robertson line! Now, Robertson Wheels can handle broadly diversified grinding operations!

The addition of a line of resin-bonded wheels is the logical answer to our desire to give you a complete one-source grinding service.

We asked our engineers to produce a synthetic resin wheel as outstanding as the vitrified "Cool-Cut" and our related vitrified-bonded line . . . and they did it! Robertson Resin-Bonded Wheels can handle the toughest jobs; for instance, billet grinding, grinding in steel foundries, finishing welded products. They're perfect for snagging and cut-off operations, or for any job in which the wheel is subjected to unusual strain. And they're demons for work! Robertson Resin-Bonded Wheels are designed to operate at 9,500 s.f.p.m. on swing-frame and floor grinders. They can operate as high as 16,000 s.f.p.m., provided safety standards are followed. Speeds such as these spell economy where rapid stock removal is a "must."

Remember, for any grinding job, big or small—and especially the tough ones—you'll find the answer to your problem in a Robertson Wheel, whether it's vitrified or resin-bonded.

ROBERTSON MANUFACTURING COMPANY

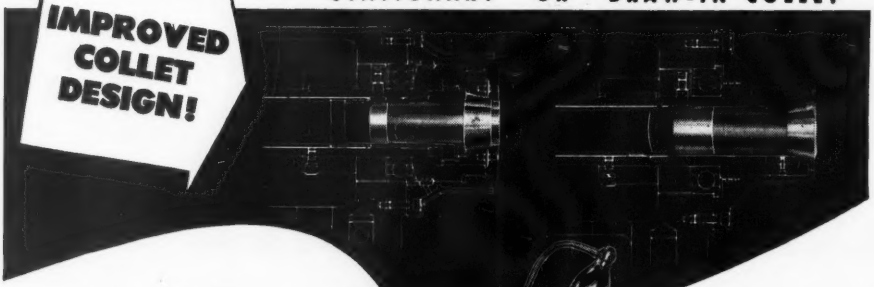
TRENTON 5, NEW JERSEY

Resin-Bonded and Vitrified-Bonded Grinding Wheels, Mounted Wheels, Segments

ANOTHER *Plus* FEATURE OF THE *New* RIVETT 918S PRECISION CABINET LATHE

STATIONARY OR DRAW-IN COLLET

IMPROVED COLLET DESIGN!



6R DRAW-IN COLLET

The Rivett 6R outpoints the conventional 5C (Cataract) draw-in collet in precision, capacity and gripping power.

Spacing of front and rear bearings is twice that of 5C collet — this spacing reduces the runout error on undersize or oversize stock. The greater the bearing spacing, the smaller the work runout beyond the collet face.

The 6R collet has 1⅛" round hole capacity, ⅛" greater than the 5C collet.

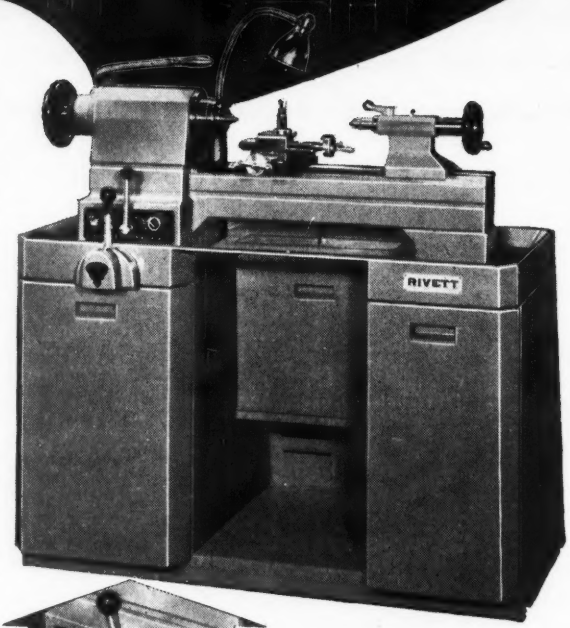
The length of jaws reduces force required to grip work. By test the 5C collet requires 15% more force by draw-bar to hold ½" stock.

7R STATIONARY COLLET

The Rivett 7R has no "in" or "out" motion when closing on work. Lengths can be held; varying diameters have no effect on chucking.

NO OTHER LATHE HAS COMPARABLE COLLET FEATURES

Write for Bulletin 918-SL





SPINDLE SPEED SELECTION

Correct spindle speed for any operation. Control lever affords any speed from 80 to 3700 r.p.m. Selected speed shows on dial.

RIVETT

RIVETT LATHE & GRINDER, INC.

BRIGHTON · BOSTON · MASSACHUSETTS · U. S. A.



standard one-piece *forged and heat-treated* T-slot bolts

CHEAPER TO BUY AND SAFER TO USE

T-slot bolts must fit square and stay tight in the tables of planers, sharpers, boring mills, milling machines, etc., or the table slot may be ruined.

OK T-slot bolts are built to fit all standard machine tables. They are forged — not welded — of one piece of special mild carbon steel and heat treated for maximum strength. The heads are milled accurately to size and the specially designed flange nut saves hunting for missing washers.

OK T-slot bolts come in any length from 2 inches up to 30 inches. Larger sizes made to order. Prices on application.

LIST PRICES OF STANDARD TEE SLOT BOLTS COMPLETE WITH FLANGED NUT

Length Under Head	½" Dia.	⅝" Dia.	¾" Dia.	⅞" Dia.
2	.60	.65	.....	.....
2½	.60	.65	.....	.....
3	.62	.67	.82	.....
3½	.65	.70	.85	.95
4	.65	.70	.85	.95
5	.....	.73	.88	.95
6	.70	.76	.91	1.00
7		.79	.94	.....
8		.85	1.00	1.20
9		.90	1.05	.....
10		.90	1.05	1.25
12		.95	1.10	1.25
14			1.20	1.35
16			1.30	1.45

OK **the OK Tool Co. inc.** Shelton, Conn.

Since 1901 Makers of Single Point Tools, Inserted Blade Milling Cutters, etc.

This bigger, sturdier band saw gives *more* capacity, *more* accuracy

JOHNSON *metal cut-off* BAND SAW



You have the capacity for a wider range of jobs with this 10" high, 18" wide, Johnson. Those extra inches also save you time and trouble on all large jobs—heavy bars, tubes, angles, gang cutting on small stock, etc.

Moreover, higher speeds are possible because of the extreme rigidity of bed, wide guide rolls supporting the blade, and extra large band wheels which minimize bending and twisting stresses on blade. Resultant greater accuracy in cut saves machining time, tools, and metal — and saves saw blades, too.

- **Automatic, hydraulic feed, quick adjustable from front of machine.**
- **Quick-setting vise, operated from front of machine.**
- **Stop for setting work, duplicating length cut-off.**
- **Four motor speeds. Automatic shut-off at end of cut.**
- **Made in two types—dry cutting for general work, wet cutting (illustrated) for high production. Both models moderately priced.**

WRITE NOW ***for the descriptive catalog, and the address of the dealer nearest you.***



JOHNSON MANUFACTURING CORP.
620 CHRYSLER BLDG., NEW YORK 17, N. Y.



Apex Bit Holders do a BIG JOB for LESS

Apex has the *right* bit holder for driving Phillips, Frearson, Slotted, Clutch Head, Socket or Hex Head Screws.

These bit holders do a big job with a minimum inventory. You merely get the bit holders you need (they last indefinitely), then order tips (of whatever types you need), discard the worn out tips and insert new ones.

Holders accommodate the short, money-saving bits in a full range of sizes and are furnished for practically all makes of power and spiral drivers.

On hex head screws each replaceable, long-wearing socket has *two lives*. Use one end until it is worn, then turn end for end—and you have a new socket.

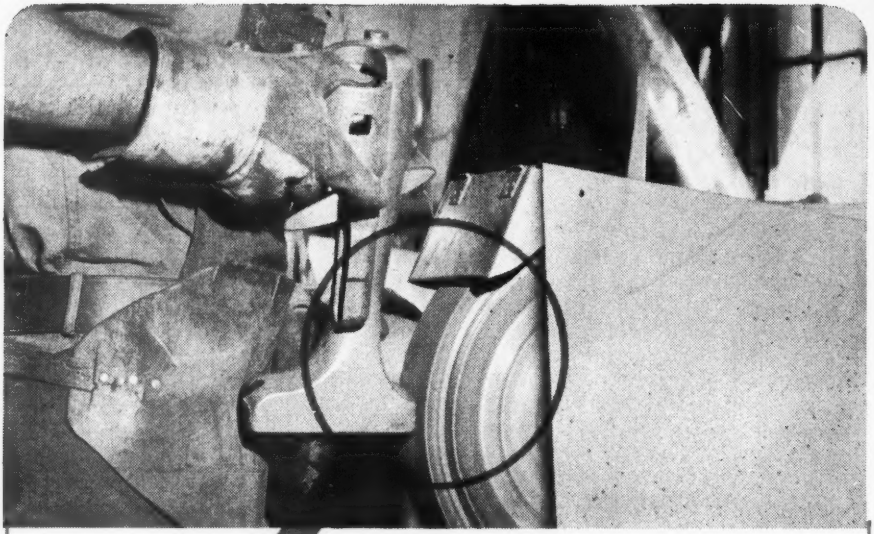
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APEX

insert type bits

THE APEX MACHINE & TOOL CO., 1028 S. Patterson Blvd., Dayton 2, Ohio

Safety Friction Tapping Chucks; Quick Change and Positive Drive Drill Chucks; Vertical Float Tapping Chucks; Parallel Floating Tool Holders; Power Bits for Phillips, Slotted Head, Frearson and Clutch Head Screws; Hand Drivers for Phillips, Frearson, Clutch Head Screws; Aircraft, Industrial Universal Joints; Sockets, Universal Joint Socket Wrenches



Production time cut 74%!

This sewing machine manufacturer formerly used hand filing to remove flash on sewing machine arms and beds. Switching to floor backstands with segment face contact wheels and 3M Abrasive Cloth Belts cut production time on each arm and bed from 12 minutes to 3 minutes, 5 seconds.

3M ABRASIVE BACKSTAND BELTS CAN HELP *YOU* REDUCE COSTS

More and more manufacturers are switching to 3M Backstand Belts because of their faster cutting and smoother finishes—regardless of whether surfaces to be finished are curved or flat! Lowered production time, increased output, and fewer rejections are combined with long, economical belt life to produce new savings and a new quality of output.

Further information can be had from your local jobber, or use the coupon below for your free copy of our booklet explaining the 3M Backstand Method.

3M

ABRASIVE BELTS

ANOTHER 3M COMPANY PRODUCT

Please send us a copy of your booklet.
MMS 348

By_____

Firm_____

Address_____

City_____ Zone____ State_____

Made in U. S. A. by **MINNESOTA MINING & MFG. CO.** Saint Paul 6, Minn.

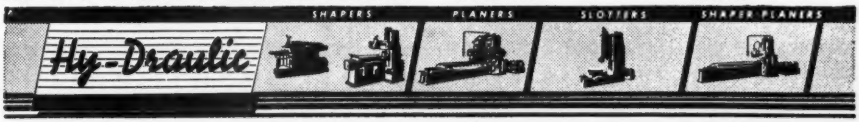


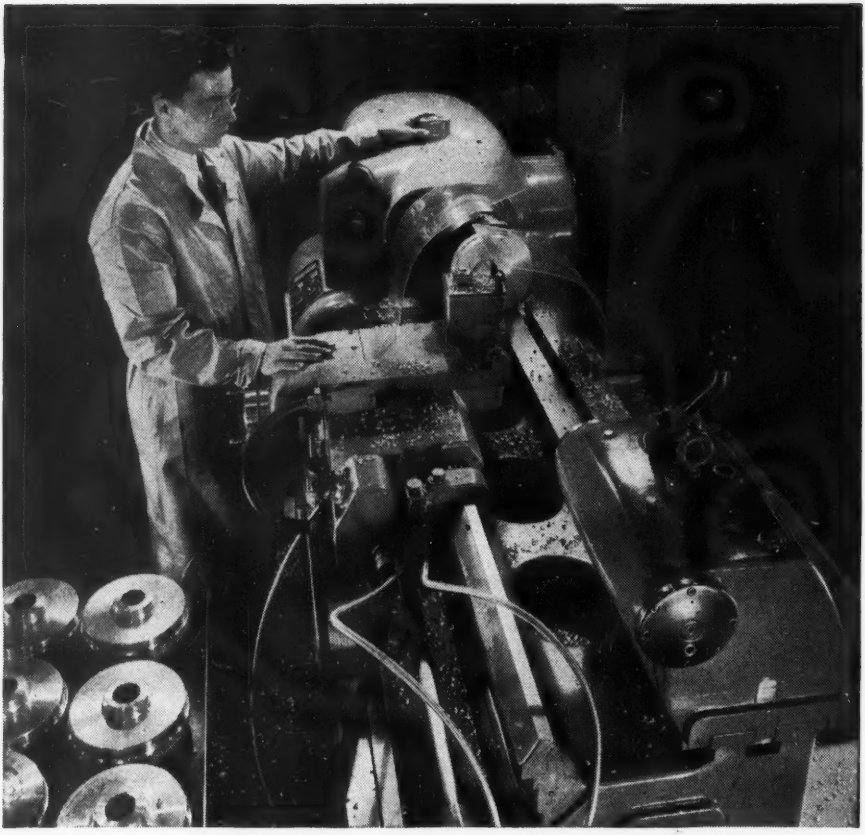
smooth to precision flat

Unusual accuracy of the Rockford Hy-Draulic Shaper-Planer is demonstrated by the above installation. Machining the gibs to a smooth finish is a standard job, typical of the hundreds of small planer jobs that are easily and quickly done on a Shaper-Planer. But machining the copper core of a resistance welder is a most unusual job . . . and proof of the absolute smoothness of the Hy-Draulic cutting stroke. The finish obtained on this work with the Rockford Hy-Draulic Shaper-Planer was a surface that checked precision flat within a tolerance measured in micro-inches . . the type of finish ordinarily obtained only by high speed carbide milling or by surface grinding. Rockford Hy-Draulic Shaper-Planers are always fast, always easy to set-up. In addition they give you the maximum in work accuracy that only quality machine construction plus the even flow of Hy-Draulic drive can provide. For complete facts write for Bulletin 445.

4712

ROCKFORD MACHINE TOOL CO.
ROCKFORD ILLINOIS





FOR A GOOD TURN *FASTER*—TURN TO MONARCH

For repetitive high production, for small lot production, for ultra-precision in the toolroom—you can't beat Monarch.

This, the broadest line of metal turning equipment in the world, includes:

- Engine Lathes—10″ to 32″
- The Uni-Matic
- Toolmaker's Lathes—10″ to 20″
- The Magna-Matic
- The Speedi-Matic
- The Shapemaster
- The Mona-Matic (illustrated above)

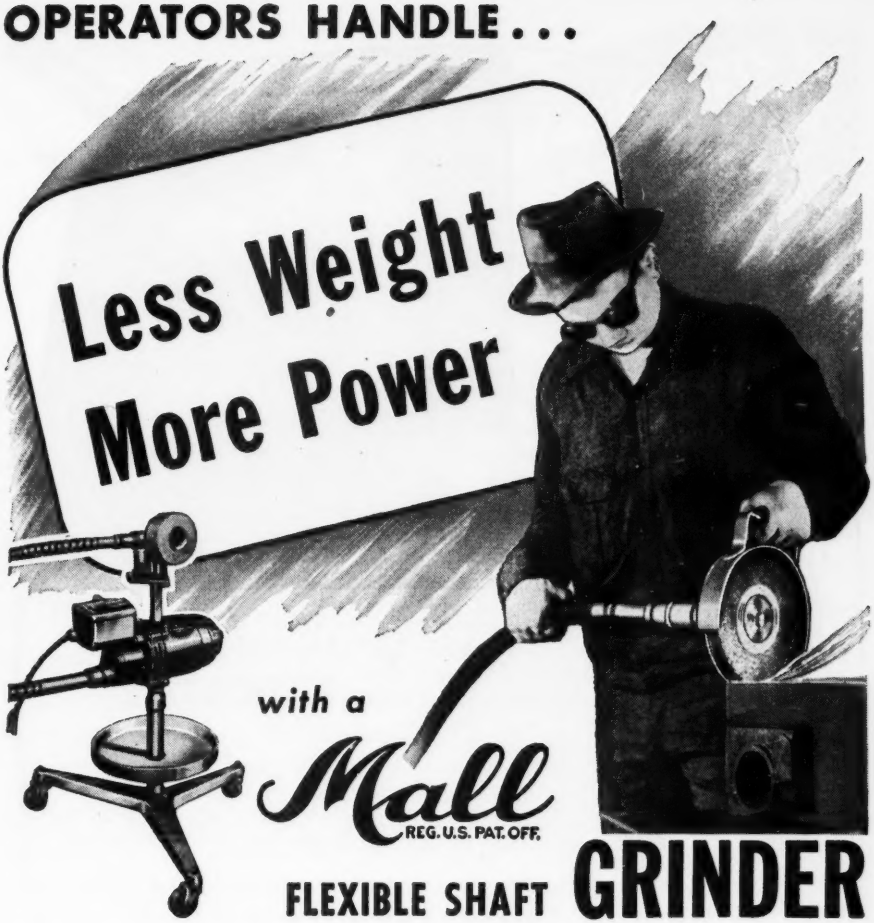
Applicable to many of the basic types are the following exclusive, profit-building, shape duplicating attachments:

- ★ "Air-Gage Tracer"
- ★ Automatic Sizing
- ★ Keller Controls

ACCURACY · ECONOMY · LONG LIFE
Monarch
TURNING MACHINES

THE MONARCH MACHINE TOOL COMPANY · SIDNEY · OHIO

OPERATORS HANDLE . . .



FLEXIBLE SHAFT GRINDER

As the motor is mounted on an easy-rolling floor stand or overhead trolley, the working tools on a Mall Flexible Shaft Grinder are lighter in weight, more compact, more comfortable to hold, easier and less tiresome to handle. This means fewer rest periods—more time on the job. Spots can be reached that are inaccessible to heavier, more cumbersome self-contained motorized tools. More than this, every Mall motor is dynamically balanced at the factory to assure true concentric motion in the tool. Attachments for Grinding, Disc Sanding, Wire Brushing, Buffing, Polishing and Drilling are interchangeable. Available in 3 H.P. Geared Head—4500 r.p.m.; ¾, 1, 1½ H.P. Direct Drive—3450 r.p.m.; and ¾ H.P. Counter-shaft models—1650 to 7400 r.p.m. All with tilting, swiveling, dustproof electric motors.

Ask your Supplier or write Power Tool Division for literature.

MALL TOOL COMPANY

7814 South Chicago Avenue **Chicago 19, Illinois**

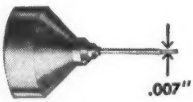
26 Years of "Better Tools For Better Work"



TRY THIS...

ON YOUR BEST TOOL ROOM LATHE!

Take a lathe—your best tool maker's lathe. Chuck a piece of ⅝" SAE 1050 Bar Stock. Sharpen up a tool and mount it in the tool post. Then turn the stock down to a diameter of .007" as is being done in the illustration above—a real job if you can do it, and if you do, you'll be certain your lathe has both rigidity and accuracy.



The piece pictured at the left was turned on a Hendey 9" x 24" Tool and Gage Maker's Lathe. You saw it done if you visited Hendey at the Machine Tool Show. You can see it done any day you choose to call on Hendey.

Though you may never be called on for such a job in your tool room it's a sure thing you can use a lathe that has all the properties needed for such a job. For full particulars write for the Hendey 9" x 24" Tool and Gage Maker's Lathe Catalog.

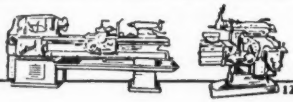
The Hendey Machine Company

Hendey

Main Office and Plant — Torrington, Connecticut

Offices — N. Y., Chicago, Boston, Detroit, Rochester, Los Angeles, San Francisco

Representatives in — Philadelphia, Cleveland, Pittsburgh



TOOL ROOM LATHES
9"-12"-14"-16"-18"-20"-24"

SHAPERS
12"-16"-20"-24"-28"



Announcing ECONOCUT

CARBOLOY-TIPPED CEMENTED CARBIDES REAMERS

Again, Staples Tool Company leads in reducing *metal cutting costs*—with the new line of ECONOCUT Reamers. These precision Carboloy-tipped tools are now available for immediate delivery at the *lowest prices ever announced* in circular carbide tool history!

Now you get carbide reamer economy, better hole finish, longer tool life—at greatly reduced prices. Staples has made this cost reduction possible through expanded and improved production facilities—and by standardizing ECONOCUT on straight shank tools in the most widely used size range. See your Staples Tool Distributor, or write for further information.

THE STAPLES TOOL COMPANY
CINCINNATI 25, OHIO

STRAIGHT SHANK—STRAIGHT FLUTES				
Diameter	Number of Flutes	Shank Diameter	Overall Length	PRICE
1/4"	4	15/64"	6"	$3.75
9/32	4	15/64	6	4.00
5/16	4	9/32	6	4.00
11/32	4	9/32	6	4.25
3/8	4	5/16	7	4.25
13/32	4	5/16	7	4.75
7/16	4	3/8	7	4.75
15/32	4	3/8	7	5.00
1/2	6	7/16	8	5.50
17/32	6	7/16	8	5.75
9/16	6	7/16	8	5.75
19/32	6	7/16	8	6.25
5/8	6	9/16	9	6.25

NOTE: For taper shank requirements, use standard split sleeve reamer driver. Available at moderate price.

See the Staples Tool exhibit at Booth No. 327, the ASTE Industrial Exposition, Cleveland, March 15-19.

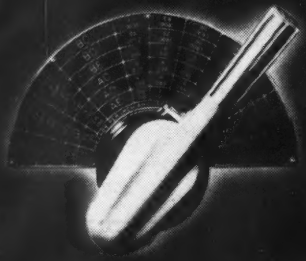
write for your complete Staples Tool catalog

Staples CARBOLOY CEMENTED CARBIDE TOOLS

A COMPLETE LINE OF SINGLE AND MULTIPLE POINT CUTTING TOOLS
EXPANSION REAMERS • FORM TOOLS • CENTERS • MASONRY DRILLS • SPECIAL TOOLS

SIDNEY CONTROLS

are convenient  *and easy to operate*





● In developing the new Sidney Lathe particular attention has been given to the controls both as to convenience of location and as to manipulation.

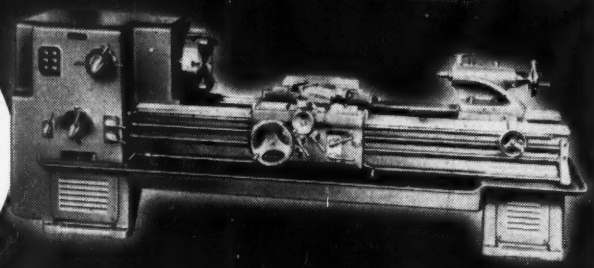
The new controls are exceptionally easy to shift and the use of the single dial for Sidney's 32 spindle speeds can be quickly pre-selected by the operator. Also the complete range of feeds and leads are readily accessible by means of dial on the front of the gear box.

Apron controls have also been simplified and control for both longitudinal and cross feed is through independent clutch levers which actuate positive serrated jaw plates and is provided with an over-load safety feature.

Thus the new Sidney provides greater ease of operation—saves operator's time—and enables you to get greater production at lower costs.

Write for complete details.

Builders of Precision Machinery
THE SIDNEY MACHINE TOOL COMPANY
SIDNEY • OHIO
SIDNEY
ESTABLISHED 1904



ROTO-CLONE removes the double danger of fibrous, greasy dust

DUST presented a double danger in the polishing department of Mouldings, Inc., Indianapolis, Ind., producers of stainless steel moulding for the automotive field. Buffing metal moulding strip produces a fibrous, greasy dust which is both a fire and health hazard. Here, as in scores of plants, Type N Roto-Clones solve the problem by wet collection of the material.



View showing three of 14 Type N Roto-Clones collecting buffing dust in this modern plant.

The Type N Roto-Clone* Hydro-Static Precipitator combines centrifugal forces and intimate intermixing of water and dust-laden air for extremely high cleaning efficiency. It is compact in design, has no moving parts to foul, requires little maintenance and the once dangerous dust is easily removed in harmless sludge form.

The Type N Roto-Clone is available for servicing individual stands, as illustrated, or for use with central system exhausting a group of dust sources. For complete information write for copy of Bulletin No. 277 or contact your local AAF representative.

AMERICAN AIR FILTER CO., INC.

100 Central Avenue, Louisville 8, Ky.

In Canada: Darling Bros., Ltd., Montreal, P.Q.

**Roto-Clone is the trade-mark (Reg. U. S. Pat. Off.) of the American Air Filter Company, Inc., for various dust collectors of the dynamic precipitator and hydro-static precipitator types.*

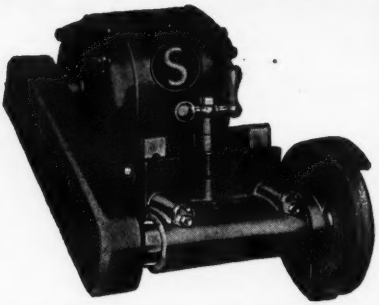
AAF®

® ROTO-CLONE
DUST CONTROL EQUIPMENT

TOOLS FOR EVERY SHOP!



TYPE 2BDG belt drive 1 H.P. to 15 H.P. Longer wheel life, lower wheel costs, higher production!



TYPE BPA ¼ H.P. to 10 H.P. A 2-in-1 precision tool. Grind externally, and in a few minutes mount an interchangeable quill for internal grinding up to 24" deep!



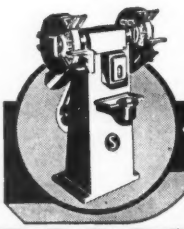
TYPE BAS ¼ H.P. to 1 H.P. Ball bearing equipped. Guards adjustable to wheel wear!



TYPE CA ¼ H.P. to ½ H.P. Particularly adapted for grinding lathe centers, cutters, reamers, dies, rolls and various work on lathes, milling machine, shaper, planer or boring mill.

Manufacturers of STANDARD:
Grinders, Tool Post, Internal, Disc, Carbide, Vertical Spindle, Snagging, etc. ¼ H.P. to 50 H.P. Buffing and Polishing Machines up to 60 H.P. **Speed Lathes.**

Write for Catalog No. 43 Today

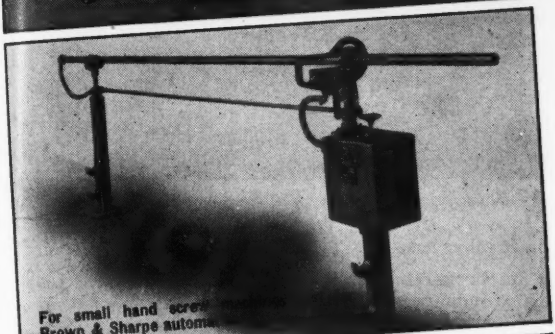


The STANDARD ELECTRICAL TOOL Co.
CINCINNATI - 4 - OHIO
2487 RIVER ROAD

FEEDS AUTOMATICALLY

to the last possible remnant !





For small hand screw
Brown & Sharpe automa



For tubes or light metal

Protected By Patents

LIPE

PNEUMATIC BAR FEEDS

Actually, the Lipe Pneumatic Bar Feed does every part of the feed job except to replace the bar. And does it easily, automatically, rapidly and safely.

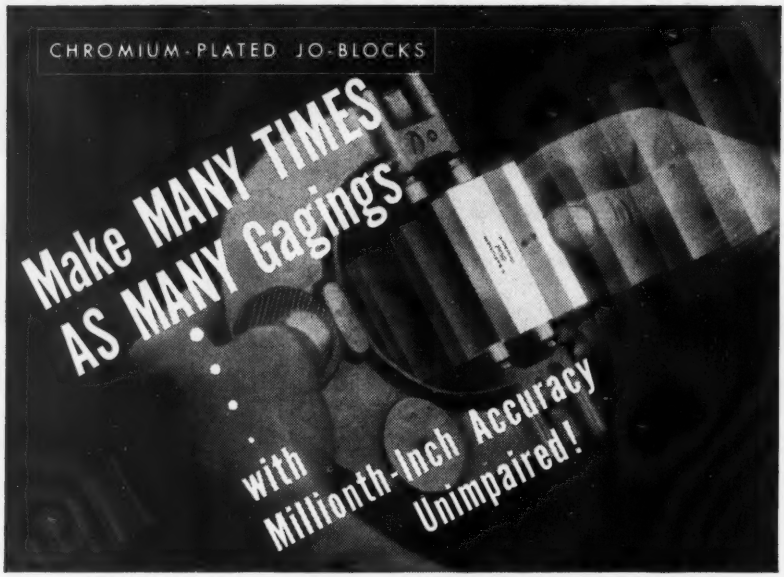
Gets More Out of Your Machine

- Operates on any machine tool where stock is fed through a spindle or having a fixed stock stop.
- Feeds stock bar automatically into spindle.
- Reloads easily.
- Permits use of exact size polished stock to save additional operations.
- Saves on rejects due to scratching, marring.
- Eliminates end whip.
- Bar feeds for standard bar stock up to and including 2½" dia.; and lightweight bars and tubing up to and including 4" dia.
- Safe and fool-proof. Eliminates feed fingers, feed finger tube, and all other parts related to feeding in the screw machine.

SEE OUR EXHIBIT
Booth 818, A.S.T.E.
Show,
Cleveland,
March 15-19

LIPE ROLLWAY

Lipe-ROLLWAY CORPORATION, Syracuse 1, N. Y., U.S.A.
Cable Address: LIPEGEAR



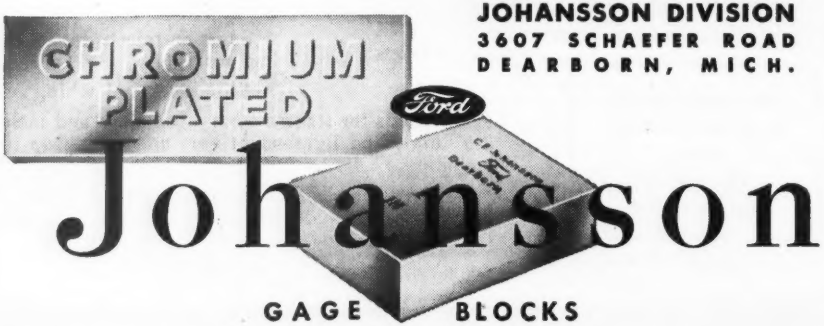
The harder your gage blocks have to work, the more you'll **SAVE** with chromium-plated Jo-Blocks. Wherever service is at all severe, they'll far outlast plain steel blocks.

The resistance of chromium-plated Jo-Blocks to abrasion or impact is many times that of unprotected steel. They are also far more resistant to corrosive effects of skin acids and moisture. Being lapped and burnished to specified dimension *after* plating, their warranted accuracies are precisely the same as those of unplated Jo-Blocks.

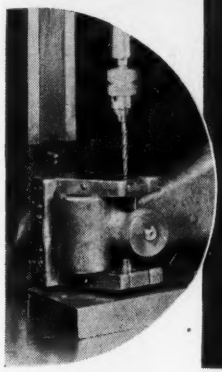
Old sets of Jo-Blocks or gage blocks of any make, in sizes from .050″ to 4.000″, may be turned in to the factory for credit on new chromium-plated sets. New chromium-plated Jo-Blocks may also be purchased without trade-in.

The first chromium-plated gage blocks were produced by Ford Motor Company more than twenty years ago. Service records abundantly prove the vastly longer life of these fine, hard-surfaced tools. Write for literature.

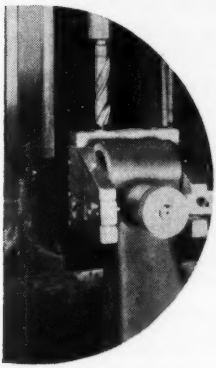
FORD MOTOR COMPANY
JOHANSSON DIVISION
3607 SCHAEFER ROAD
DEARBORN, MICH.



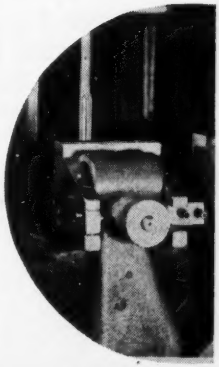
A FULL RANGE OF SPEEDS FOR LIGHT OPERATION



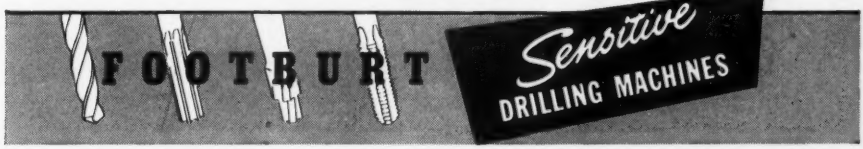




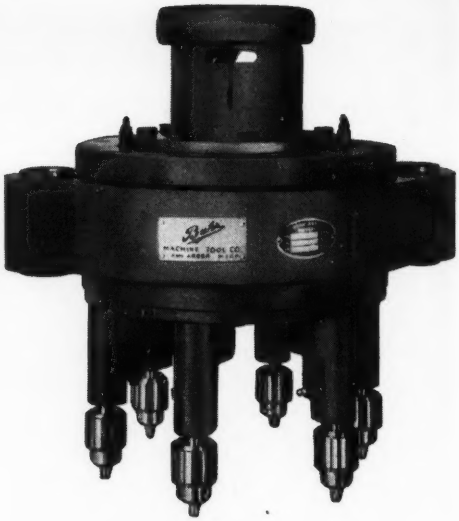
● Footburt Sensitive Drilling Machines have a wide range of speeds to be used in handling all sizes of tools within the rated drilling capacity of ⅝" in mild steel or ⅞" in cast iron. Standard speeds are 570 to 2300 RPM with 1200 RPM motor or 855 to 3350 RPM with 1800 RPM motor. The back gear attachment provides four additional slow speeds with a minimum of 185 RPM using the 1200 RPM motor or 277 using the 1800 RPM motor. Power feed and tapping attachments are available on any spindle to make production work easier and faster. Sturdy construction insures the maintenance of accuracy over many years of use.



THE FOOTE-BURT COMPANY • Cleveland 8, Ohio
Detroit Office: General Motors Building

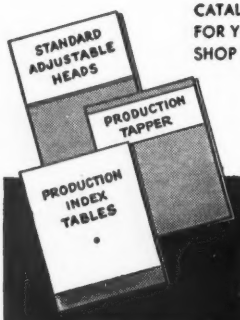


"Beefed Up" for PRODUCTION Drilling and Tapping



Buhr Standard Adjustable Drilling and Tapping Heads are engineered and built to deliver production at low unit cost. Fully adjustable, 2 to 8 spindles, for short or long runs. Rapid set up, models for all presses. Anti-friction bearing throughout; all gears shaved, spline-broached, induction hardened. Shafts and spindles splined. No corners cut in design, materials or workmanship.

Model 06-F-2 shown with No. 2 Jacobs Chucks also is available with spindles for Buhr Collets or with No. 1 Morse Taper. Drill capacity is 5/16", cast iron, minimum between centers, 1½". Buhr steel-bushed guide-bar bosses illustrated are available for precision alignment with fixture.



CATALOGS FOR YOUR SHOP LIBRARY

Buhr builds all types of special fixed center, multiple heads for HIGH production under severe operating conditions.

BE SURE... *Specify Buhr!*

Buhr MACHINE TOOL CO.

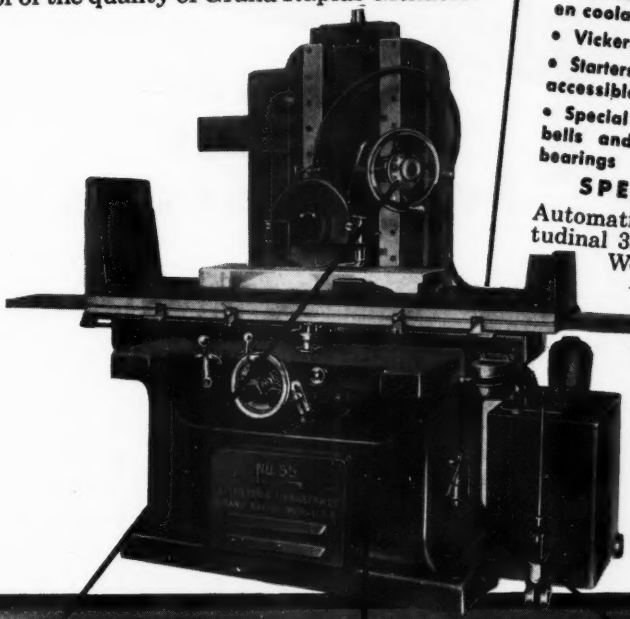
845 Green Street · Ann Arbor, Mich.

PROVEN PERFORMANCE

SELLS 6 OUT OF 10 GRAND RAPIDS GRINDERS

Of every ten Grand Rapids Hydraulic Feed Surface Grinders sold, six are to customers already using Gallmeyer and Livingston grinding machinery.

Such customer acceptance and approval is proof of the quality of Grand Rapids Grinders.



FEATURES

- 125 feet per minute longitudinal table speed
- Separate motors to drive grinding wheel spindle and hydraulic mechanism
- Two spindle speeds to reduce wheel costs
- Portable, self-contained motor driven coolant system
- Vickers vane type hydraulic pump
- Starters, controls and motors easily accessible
- Special G & L spindle motor endbells and over-size precision ball bearings

SPECIFICATIONS

Automatic table travel—longitudinal 38″, transverse 13½″ • Working surface of table —12″ x 36″ • Standard wheel size—12″ x 1″ x 3″ • Vertical movement of wheel head—18″ • Spindle speeds—1925 and 2500 RPM • Floor space—150″ wide x 102″ deep

Write for Bulletin GL 101



GALLMEYER & LIVINGSTON COMPANY, 308 STRAIGHT ST., S.W., GRAND RAPIDS 4, MICH.

90% OF G.F.P.P. USERS BUY THEM AGAIN...

GENERAL FLEXIBLE POWER PRESSES

FOR BENDING STRAIGHTENING ASSEMBLING, ETC. . . .



No. 106 General Flexible Power Press, 15-ton Capacity, with No. 76 Lock Lever Center Straightening Attachment.

Production men almost invariably ask for another All Mechanical "Flexible Press." They know it will increase their output per hour, and require little maintenance or down time for repairs. • They can explain in a minute how you vary your pressure on the foot pedal to exert the exact amount of power needed on each piece of work. • It's the fastest method known, yet so simple, anyone can operate Flexible Presses productively. • Write for the six-page Bulletin 392.

3352

GENERAL MANUFACTURING CO.

6433 FARNSWORTH AVE. • DETROIT 11, MICHIGAN

HOW Can You Test the Hardness of

. . . a .003″ diameter wire?

. . . parts weighing hundreds of pounds?

. . . sheets only .001″ thick?

. . . internal surfaces of cylinders?

. . . individual constituents of alloys?

. . . gear teeth on the pitch line?

THESE are simple, every-day jobs for Wilson hardness testing equipment. Any of our representatives can give you the answer to these and many other such questions.

Write us about any problem you have involving hardness testing. Our factory-trained engineers will be glad to work with you.

VISIT OUR BOOTH AT THE TOOL ENGINEERS' SHOW

WILSON

MECHANICAL INSTRUMENT CO., INC.

ASSOCIATE COMPANY OF AMERICAN CHAIN & CABLE COMPANY, INC.

ACCO

TRADE MARK

230-G PARK AVENUE, NEW YORK 17, N. Y.

DISSTON BITE-RITE FILES



THEY'LL SAVE YOU TIME AND CUT YOUR FILING COSTS

Staggering of teeth eliminates file tracks . . . makes finished surfaces smoother.

They're different . . . in design . . . in the results they give you. Instead of being cut in straight rows, the teeth of Disston Double-cut Bite-Rite Files are staggered. And the results: you finish a job in less time; you get smoother work with fewer, shorter operations; you get longer service from each file. You save time and money all along the line.

Next time you order files, specify Disston Bite-Rite Files . . . and do a better filing job in less time and at less cost.

•

For other metal-cutting tools of extra quality, ask for DISSTON SWISS PATTERN FILES . . . DISSTON HACK SAW BLADES . . . CIRCULAR SAWS...CARBOLOY FITTED CIRCULAR SAWS...TOOL BITS.

Write for FREE folders, "What File?" showing recommended procedure in selecting proper file.

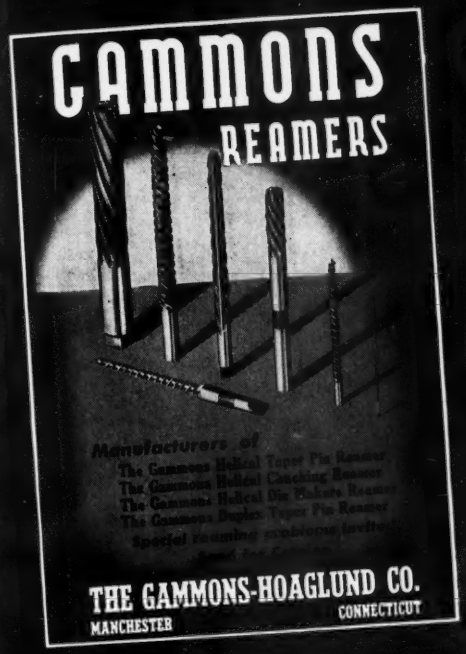
ESTABLISHED 1840 — REG. U.S. PAT. OFF.

Order from your Disston Distributor, or write direct for further particulars.

HENRY DISSTON & SONS, INC., 321 Tacony, Philadelphia 35, Pa., U.S.A.

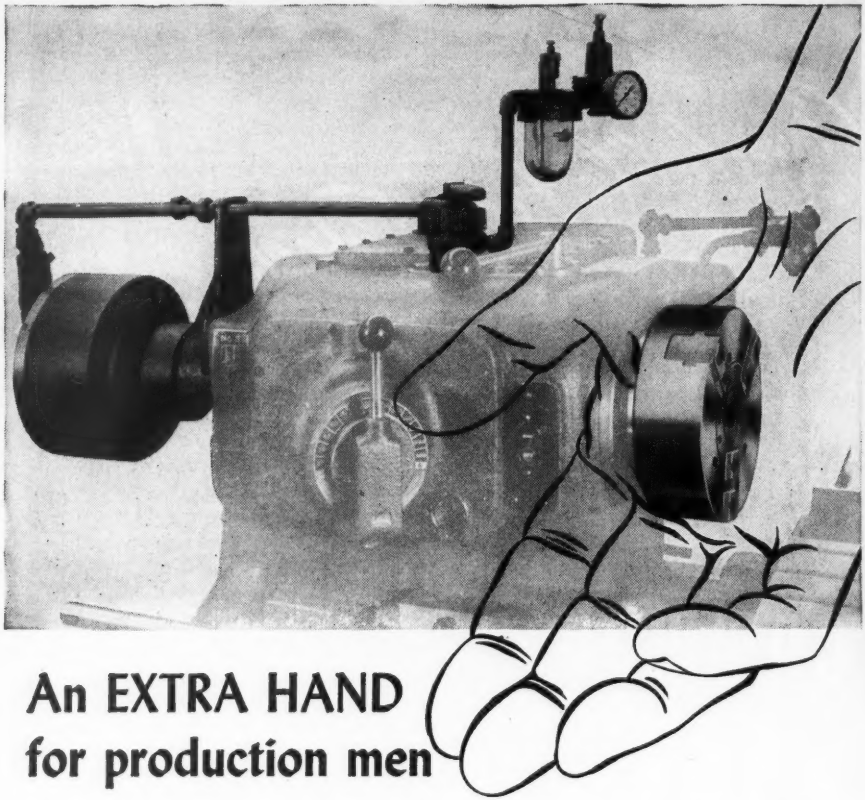
In Canada, write 2-20 Fraser Ave., Toronto 1, Ont.

Available from Stock



• ORIGINATORS OF THE HELICAL TAPER PIN REAMER •

COME SEE US AT THE A.S.T.E. SHOW—BOOTH No. 1503



An EXTRA HAND for production men

Skinner Power Chucks and power chucking equipment give a production bonus to any turning equipment. In this day of high production, they give a hand where it is needed most.

1. They increase production by reducing the chucking time.
2. They help eliminate operator fatigue.

Production men also appreciate this extra hand—that increases output—that reduces cost.

Skinner Power Chucks, *the simplest Power Chucks made,* have but four moving parts—a wedge and three jaws. This guarantees accuracy throughout a long life and eliminates costly maintenance. The special wedge angle, developed by Skinner, gives tremendous gripping power and unusual safety. *Once a Skinner Power Chuck grips the work, it will not release even if the air is completely cut off! It will hold positively, under the heaviest cuts and highest speeds, until the operator wishes to remove the work piece.*

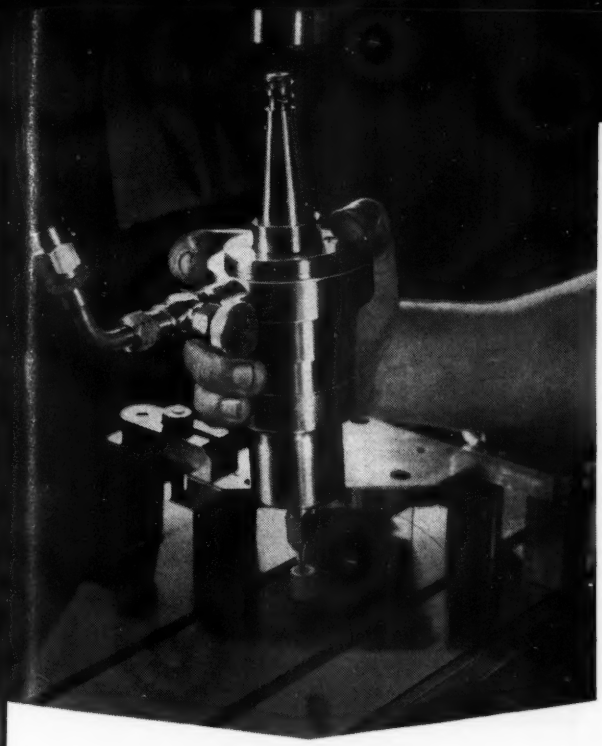
Complete details on Skinner Power Chucks, rotating and non-rotating air cylinders, valves, filters and all other Skinner chucking and vise equipment are contained in Catalog No. 60. Write for your free copy today.

The Skinner Chuck Co.
340 CHURCH STREET, NEW BRITAIN, CONN.

Skinner Chucks

THE CREST OF QUALITY

HAND & POWER OPERATED MACHINE CHUCKS – AIR CHUCK EQUIPMENT – FACE PLATE JAWS – MACHINE VISES



would a boring chuck—Jig Grind—on your Jig Borer or Mill.

JIG GRINDING

with the

Vulcanaire

The Vulcanaire System . . .
Includes an adapter to fit the spindle of your machine tool
Vacuum dust collector
Filter and Oiler
Pressure Gauge
Speed Regulator

When Jig Grinding is needed you can have it quickly and economically with the VULCANAIRE. Place it in the spindle of your jig borer (or mill).

AND . . Locate—Finish Grind holes in hardened steel to "tenths" at controlled speeds up to 65,000 RPM

. . Grind dowel holes—square with a ground base
. . Move location of holes in hardened steel blocks
. . Grind interchangeable holes in hardened sections
. . Grind .032 to ⅛" holes with diamond impregnated laps
. . Grind contours and relief with tungsten carbide burrs
. . Grind radii in die sections
. . Grind contours in gages

See it in Booth 825 A.S.T.E. Show, Cleveland

Write for literature—for quotation, mentioning machine tool application.

Vulcan Tool Company · Dayton 10 · Ohio · U.S.A.

POWER PLUS For Hydraulic Steering

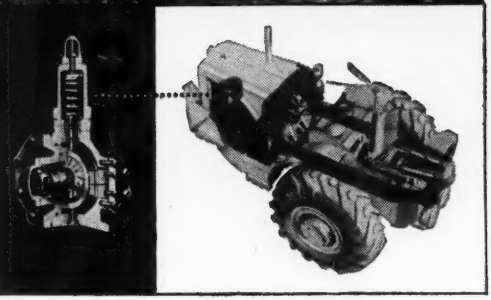


Photos courtesy The Heil Company Milwaukee, Wisc.

The Heil Company's big, heavy duty Heiliner, 2-wheel, high speed tractor shown above, utilizes hydraulic steering. The complete unit, consisting of tractor and scraper, when loaded weighs 45 tons. The power is supplied by a Variable Volume Special RACINE Pump, modified to provide easy handling of this giant earth mover. Note photo to right—pump is engine driven.

Variable Volume RACINE Pumps, provide a source of hydraulic force with these advantages—simplified circuits—reduced number of needed valves — lower horsepower consumption. On many installations, smaller oil reservoirs may be used because heating is reduced.

Trained hydraulic engineers and a well qualified staff of special field representatives offer you a complete consulting service without cost or obligation. Write today for our catalog P-10-C, illustrating RACINE's full line of Variable Volume Pumps, Sleeve Type Valves and Pressure Boosters. Address RACINE TOOL AND MACHINE CO., 1770 State St., Racine, Wisconsin.



RACINE *Hydraulic* FOUR-WAY VALVES



A complete line of sleeve-type, balanced-piston four-way oil hydraulic valves in 3/8" to 1 1/2" I.P.S. are available for your hydraulic circuits Models can be supplied for either manual, electrical or mechanical control.

RACINE *Hydraulic* METAL CUTTING MACHINES

The modern, most accurate, time and metal saving way to cut any metal whether it be soft aluminum tubing or hard tool steels is with a RACINE SAW. Saw blade is operated and controlled by "oil-cushioned" hydraulic power. Models are available for general all-around shop work or for high production multiple billet cutting—in all price ranges in capacities from 6" x 6" to 20" x 20". Write for Catalog No. 12.



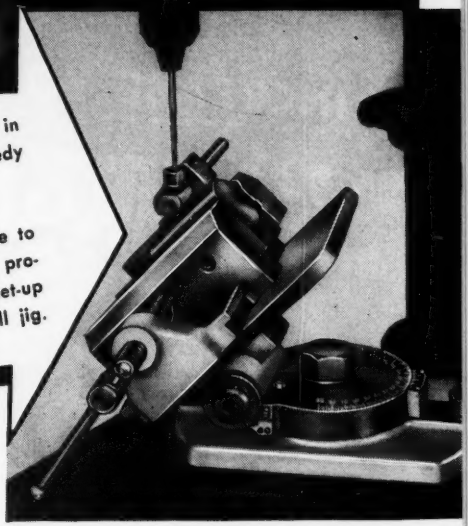
RACINE

FOR QUALITY AND PRECISION

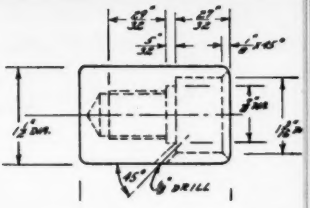
VISE PAYS FOR ITSELF ON FIRST JOB!

THE JOB — To drill a 45° angular hole, ⅛-inch in diameter in 1800 copper sleeves. Low cost and speedy production major considerations.

THE RESULTS — By using a Matco All-Angle Vise to hold work and with Matco Drilling Attachment, a production of 175 pieces per hour was attained. (Set-up time 5 min.) Saves cost of a single purpose drill jig.



Here, again, is actual proof of the unusual versatility . . . speed of production . . . and economy of the Matco *All-Angle* Vise. For sturdy, precision-engineered Matco Vises mean accurate, volume production every *job*. The Double-Swivel Construction saves you the cost of special jigs and fixtures. This vise is available in 3½" and 4½" sizes.



Actual Blueprint of Copper Sleeve Drilled on 45° Angle

All Matco Tools Sent on 5-day Approval

- **DRILLING**
- **COUNTER BORING**
- **TAPPING**
- **REAMING**
- **GRINDING**

Factory Trained Agents in all Principal Cities.



See our
ACTION EXHIBIT CHICAGO PRODUCTION SHOW
March 22-23-24
BOOTH 80

MATCO *All-Angle* VISE

WRITE TODAY
for Catalog 13A showing vise attachments . . . and many other popular Matco tool products.

MATCO TOOL COMPANY

2830-36 West Lake Street Chicago 12

Est. 1934 — Mfrs. Complete Line Precision Vises and Radius Dressers

INCREASE YOUR PRODUCTION

with a KALAMAZOO METAL CUTTING BAND SAW



MANY SPECIAL FEATURES

If you have a cut-off problem, whether on rods, bars, tubes or odd shapes—investigate the high speed—accuracy—quick set-ups and economy of the low cost Kalamazoo Band Saw. 95% of all cut-off jobs come within its capacity. Coolant model (illustrated) permits continuous production.

Ask your dealer or write for bulletin on this MONEY SAVING TOOL.

A product of

MACHINE TOOL DIVISION, Kalamazoo Tank & Silo Co.

KALAMAZOO - - - - - - MICHIGAN

POPE SPINDLE 4 STANDOUTS



The POPE *Sealed Package Motorized Spindle for 6" x 18" Surface Grinders*—produces superior finishes, roughs off surplus metal fast, runs cool and delivers full 1 HP at the wheel. Motor and husky SKF Super-Precision Double Row roller bearings are *both sealed in*. Lubrication can't get out; dust, dirt, nuts, bolts and fingers can't get in!

Write for Data Sheet 12

The POPE *Sealed Lubrication, Totally Enclosed Fan Cooled Motor, Vertical Spindle For Surface Grinders, Planers And Boring Mills.*

Fitted with 1, 2, 3, 5, 10, 15 or 20 HP motor, running at 1200, 1800 or 3600 RPM. The Spindle has the bearing capacity and rigidity to do better work and more of it. It may be equipped with wide flange or tapered nose for *quick mounting* of a variety of wheels or tools.

Write for Data Sheets 16, 17, 18, 19.

These, of the hundreds of types and sizes of Precision Spindles designed and built by POPE, are the two that have earned the highest rating for superior performance by the manufacturers using them.

If you want to step up both the quantity and quality of the output of your grinders, planers, boring mills and the like, these are the Spindles that can do it.

No. 4

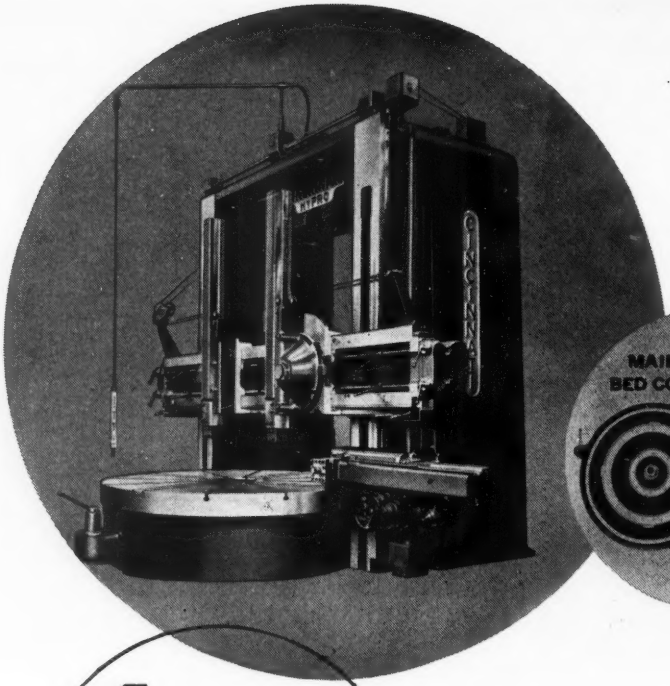
POPE

POPE MACHINERY CORPORATION

ESTABLISHED 1920

261 RIVER STREET • HAVERHILL, MASSACHUSETTS

BUILDERS OF PRECISION SPINDLES





4 MORE GOOD REASONS FOR THEIR AMAZING PERFORMANCE

CINCINNATI HYPRO Boring Mill

10-FOOT — 12-FOOT

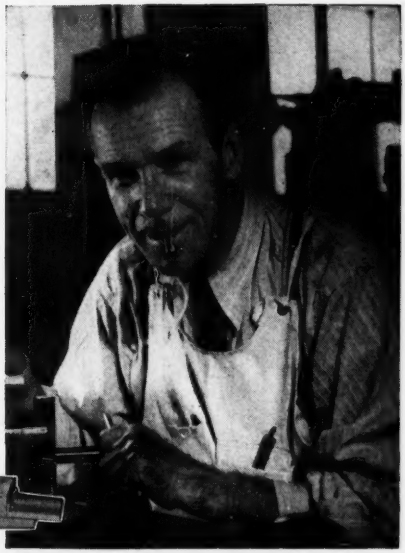
1. One piece speed box and bed construction, providing rigidity and preventing misalignment of shafts
2. Hardened steel forged gears mounted on multiple splined shafts running in anti-friction bearings
3. Anti-friction bearing table mounting with 3 load carrying tracks; outside track nearly full diameter of table
4. Automatic pressure lubrication to all units and parts, interlocked with main drive motor

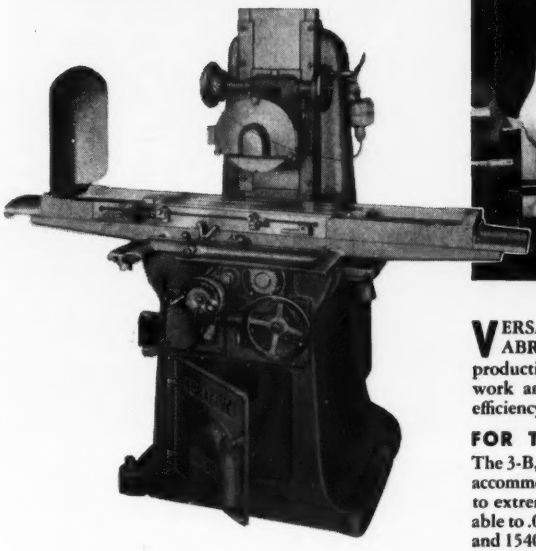
THE CINCINNATI HYPRO PLANER COMPANY

PLANERS · BORING MILLS · PLANER TYPE MILLERS

CINCINNATI, OHIO

"THERE'S ALWAYS A JOB FOR THE 3-B"





VERSATILITY is an important feature of the ABRASIVE 3-B Surface Grinder. This highly productive machine turns out precision tool room work and special one-time jobs with the same efficiency as it handles long-run production jobs.

FOR TOOL ROOM WORK

The 3-B, with 12" clearance under grinding wheel, accommodates bulky jigs and fixtures. It grinds to extremely close limits . . . vertical feed adjustable to .0001" for finest gauge work. Massive head and 1540 lb. one-piece bed casting minimize vibration. Dust protection throughout provided by metal guards. All controls conveniently centered for manual operation.

FOR LONG-RUN JOBS

Rugged construction and ample power allow heavy cuts. Fast, automatic table feeds — 20 and 40 ft. per minute — and hydraulic shock absorber to cushion table reversal, help maintain heavy production schedules. Cartridge-type oversize spindle of alloy steel (1⅜" diam.) stands up in continuous operation. Top performance and long life are built into the 3-B.

SPECIFICATIONS

WORK CAPACITY:
24" long
8" wide
12" high

SPINDLE:
2290 R.P.M.
Cartridge type

DRIVE:
3 H.P. motor

TABLE SIZE OVERALL:
59" x 10½"

WHEEL SIZE:
Standard 10" wheel.
8" or 12" wheels on order.

NET WEIGHT:
2670 lbs.

ABRASIVE
ACCURACY BOOSTS PRODUCTION

Write for Bulletin

ABRASIVE MACHINE TOOL CO.
East Providence 14, Rhode Island



INCREASED PRODUCTION AT NO EXTRA COST

10 HOURS PRODUCTION IN 8 HOURS WORKING TIME IF YOU USE A FAST CUTTING MANHATTAN WHEEL ON YOUR PORTABLE TOOL

It is false economy to consider wheel cost alone. The number of production units per wheel is not the only cost factor. More important is the number of units per day! Today's higher cost of man-hours demand increased output. Send for a MANHATTAN field engineer. He will show you how to increase production through the selection of a fast cutting MANHATTAN grinding wheel.

RUBBER BOND **RESINOID BOND**

Ask about the new V.D.B. (Vibration Dampener Bushing) Wheel.
Reduces fatigue and strain on operator.

ABRASIVE WHEEL DEPARTMENT

RAYBESTOS-MANHATTAN INC.

Keep Ahead with Manhattan

MANHATTAN RUBBER DIVISION • PASSAIC, NEW JERSEY



16" x 6' Toolroom Lathe. Price f. o. b. factory, less electrical equipment . . . **$1958**

Speed Precision Work with

SOUTH BEND LATHES and a New Drill Press



14" Drill Press, floor model. Price f.o.b. factory, less motor **$113**

South Bend Lathes and Drill Presses are built with the finest materials and workmanship available to give them the precision for the most exacting operations.

South Bend Lathes are built with 9", 10", 13", 14½", 16" and 16/24" swings in quick change gear and toolroom models; Precision Turret Lathes with ½" and 1" maximum collet capacities. Also, chucks, tools, attachments, surface plates, etc.

South Bend Drill Presses are built in 14" capacity in bench or floor models. Maximum drill size in iron or steel is ½".

All are available for immediate delivery. Time Payment Terms can be arranged. *Write today for catalogs.*

SOUTH BEND LATHE WORKS

BUILDING BETTER TOOLS SINCE 1906 • 427 E. MADISON ST., SOUTH BEND 22, IND.



DON'T FORGET!

TO SEE

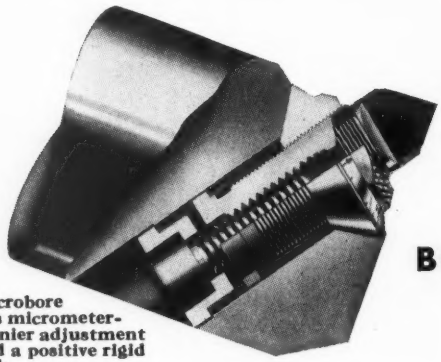
MICROBORE

by DeVlieg

at BOOTH 307

TOOL ENGINEERS INDUSTRIAL EXPOSITION

CLEVELAND, OHIO • MARCH 15TH TO 19TH



Microbore has micrometer-vernier adjustment and a positive rigid lock.

A *NEW* BASIC TOOL for PRECISION BORING, TURNING and FACING OPERATIONS!

FAST, DEPENDABLE ADJUSTMENT TO .0001 ON DIAMETER!

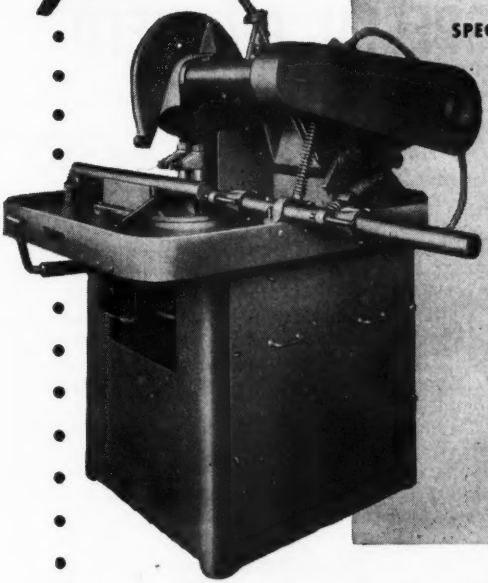
Microbore is a new cutting tool with means for making fast adjustments dependably accurate to .0001" (one ten thousandth) on diameter. It can be applied anywhere in single or multiple stations for turning, boring or facing, for roughing or finishing, for tool, experimental or production work where high accuracy, high performance and accurate relativity between machine surfaces is essential. Adjustment to its finest increment of setting is made in less than 10 seconds. Control of precisely uniform form and shape of cutting edges is effected by simple means that is a part of the Microbore system. For complete details write today.

MICROBORE by DeVlieg

MICROBORE COMPANY
480 FAIR AVENUE
FERNDALE 20, MICHIGAN

TOUGH...PRECISE..."PRODUCTION-MINDED"

Tabor-BRASIVE Cutoff Machines



SPECIFICATIONS—Type DIOFWP pictured

MOTOR—10 H.P., fully enclosed and fan cooled
COOLANT EQUIPMENT—Centrifugal pump driven by ¼ H.P. motor
POWER TRANSMISSION—Multiple V-belt drive
WHEEL SIZE—Takes wheels up to 16" diameter
WHEEL SPEED—10,000 feet per minute
CAPACITY—2½" round, square or hex.; 3" x ⅜" angles; 4½" O.D. tubing; ¾" x 3" flats
CONTROLS—Automatic starter with overload and no-voltage release. Wheel and coolant system push-button controlled
WEIGHT OF MACHINE—1800 lbs.
ACCESSORY EQUIPMENT—Price includes 12 wheels, gloves, goggles, apron and wrenches

That's the way Tabor builds their *new* series of cutoff machines for bar stock and shapes.

Every design highlight (and there are 8 of them) is aimed to give you high-speed cuts, low wheel cost, excellent cut surface characteristics—all with least possible loss of metal.

Specially constructed, Timken Bearing-mounted spindle assures cool running and reduces end-play adjustment to an all-time low.



Here's a helpful bulletin it will pay you to get. It gives full details on the 8 new design features. It's yours for the asking—so write today!

The TABOR Manufacturing Co.

6225 TACONY STREET • PHILADELPHIA 35, PENNA.

They're cut out . . . TO CUTOFF!

Doing the Unusual...

WITH Lodge & Shipley ACME TURRET LATHES

...PRODUCING SPECIAL OIL FIELD EQUIPMENT

"Time Saved 30%"

In producing special oil well cementing equipment used to control the flow of oil wells, Baker Oil Tools, Inc., Los Angeles, uses Lodge & Shipley "ACME" Turret Lathes. This noted manufacturer reports "time saved, 30% over previous lathes."

In the photo, a Model I-S Universal Turret Lathe is turning a heat-treated magnesium alloy Retainer Body at 500 R.P.M., using a carbide tipped tool, and 1/32" feed. Even higher speeds are used . . . "lathes are run at times extremely fast, at approximately 800 R.P.M.," with "satisfactory output and accuracy."

If ruggedness, versatility and low-cost production are important to you, investigate the performance records of Lodge & Shipley "ACME" Turret Lathes in Ram Type, Way Type and Saddle Type Models. Lodge & Shipley Engineers will be glad to give you all the details. Write for complete catalogs.



THE Lodge & Shipley COMPANY

MACHINE TOOL DIVISION • 3055 COLERAIN
SPECIAL PRODUCTS DIVISION • 800 EVANS ST.
CINCINNATI 25, OHIO

A NEW MACHINE—AND A NEW WAY TO CUT PRODUCTION COSTS

This new Campbell Wet Abrasive Cutting Machine has oscillating head—6″ bar stock capacity—2 models. Model 460 semi-automatic, Model 470 fully automatic operation. Stock feed, clamping, adjustment for wheel wear, ejection of cut pieces and stop after final cut all controlled by the machine itself. Cuts can be held to close tolerances.

BRIDGEPORT, CONN.—Campbell Abrasive Cutting Machines are well-established as practical production machines. In many cases they are replacing other machining methods—and reducing costs. These new Models 460 and 470 Cutamatics still further widen the possibilities of Abrasive Cutting. These machines have features which result in still greater savings—in time, material and abrasive wheel costs.

Let us give you the up-to-date story of abrasive cutting. We might be able to show you—as we have shown many others—a way to cut production costs.



A. C. Campbell Model 460 Semi-Automatic Cutamatic. *This machine also made in the Model 470 Fully Automatic.*

Visit our Booth at the TOOL ENGINEERS' SHOW

ACCO

TRADE MARK

ANDREW C. CAMPBELL DIVISION
AMERICAN CHAIN & CABLE

931 Connecticut Avenue, Bridgeport 2, Conn.

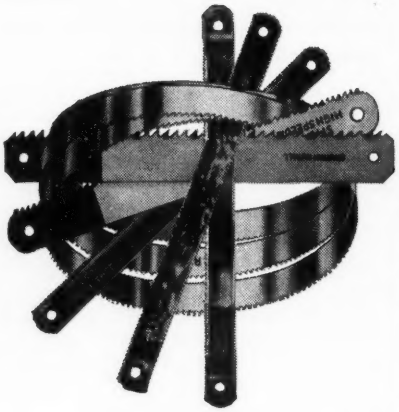
CAMPBELL
Abrasive Cutters and Nibbling Machines

SPARTAN

HACK SAWS | BAND SAWS | TOOL BITS

THEY'RE SPARTANIZED

Heat Treating Methods That Are Different



There is the right blade for every job in the complete SPARTAN LINE.

For TOOL BITS we offer KUTALL for general purpose work, SPAR-KING for the higher grade jobs and for the extra special work we give you SPARGROUND.



See Us at Booth 204 at the A.S.T.E. Cleveland Show week of March 15th

SPARTAN Distributors everywhere can serve you.

SPARTAN SAW WORKS INC., SPRINGFIELD, MASS.

SUTTON



SIGNIFIES SUPERIOR SERVICE IN COLLETS and FEEDERS

- Supplies quickly and accurately quality collets and feeders that meet your requirements.
- Makes standard and special collets and feeders for all automatics, lathes and milling machines.
- Features diamond serrated collets that grip tighter with less tension — are self-cleaning — reduce spoilage.

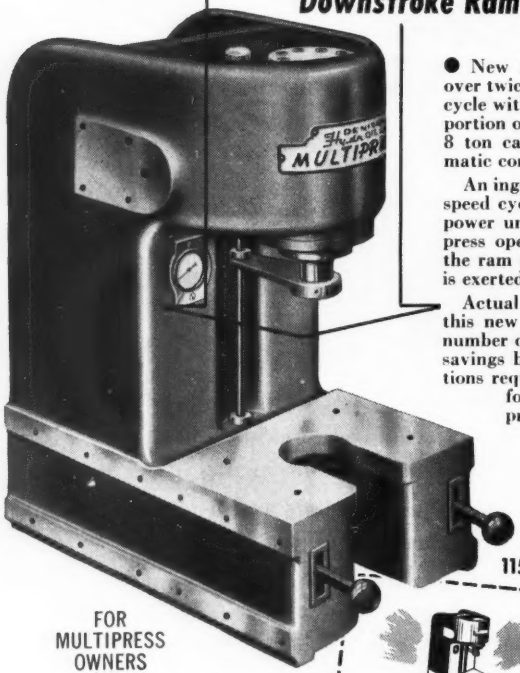
"Only Sutton Collets are Diamond Serrated"

SUTTON TOOL COMPANY
STURGIS, MICHIGAN

SUTTON Diamond Grip COLLETS

NOW New *MULTIPRESS* * with Over TWICE THE SPEED!

Downstroke Ram Speed Increased 167%



● New 1948 models of the MULTIPRESS offer over twice the speed for approach portion of ram cycle with slower pressing speed for actual work portion of stroke. They are available in 4, 6 and 8 ton capacities, with either manual or automatic control.

An ingenious HydrOILic circuit provides two-speed cycling without increasing size or cost of power unit. During the ram's downstroke, the press operates at high speed (535 ipm). After the ram contacts the work, full preset tonnage is exerted.

Actual operation time is greatly reduced by this new HydrOILic press, allowing a greater number of parts to be processed each day. This savings becomes even more apparent in operations requiring a long ram stroke. Write today for complete information on this new production-boosting feature.

* TRADE-MARK REG. U. S. PAT. OFF.

THE DENISON ENGINEERING CO.
1153 Dublin Road • Columbus 16, Ohio

FOR MULTIPRESS OWNERS

This new ram speed feature can be incorporated in your MULTIPRESSES quickly and easily. Write for details

SEE THESE NEW MODELS OF THE MULTIPRESS AT THE TOOL ENGINEER'S SHOW IN CLEVELAND

MANUAL MODEL C61

Both hand levers depressed cause ram to descend at new high speed. Raising one lever slightly results in shift to normal pressing speed.



AUTOMATIC MODEL C64

Ram operates automatically, descending at new high speed and automatically reverts to normal pressing speed upon contacting the work.

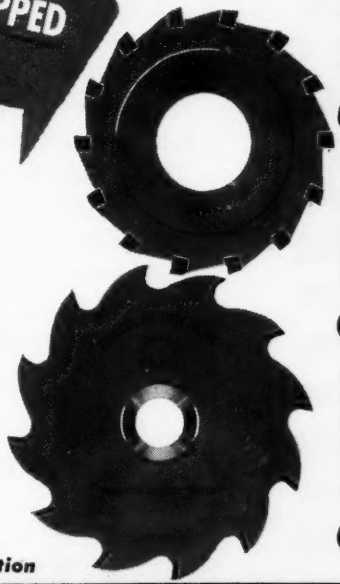
DENISON EQUIPMENT for APPLIED HydrOILics

CIRCLE ® CIRCLE ® CIRCLE ® CIRCLE ®

Achievements in Precision!



CIRCLE ® TUNGSTEN CARBIDE TIPPED CIRCULAR SAWS



Like the Palomar mirror, Circle R Tungsten Carbide Tipped Circular Saws had to conform to the highest standards and were not offered until this goal was reached.

Circle R Tungsten Carbide Tipped Circular Saws will uphold the prestige that peerless workmanship and continuously fine performance has earned for the nationally known Circle R trade mark. Specifications: 2½" to 10" in dia. 2½" to 4" as thin as 3-64. Special sizes on application. Furnished with both square and radius cutting edges. Tolerance plus or minus .00025.

At Booth 323 A.S.T.E. Industrial Exposition

CIRCULAR TOOL CO., INC.

PROVIDENCE 5, R. I.

Chicago • Philadelphia • New York • Dayton • Cleveland
Los Angeles • Rochester • Indianapolis • Detroit
St. Louis • Minneapolis



There IS a Difference In Gages!

Are You Getting *"Root Relief"*

REPUBLIC'S cleared major diameter of the ring gage permits the maximum number of resets and reworks at a minimum cost. REPUBLIC'S method guarantees that the relief will be centered in the thread root. Rings over ⅞" have a ground relief, which resists the adhering and wedging of dirt.

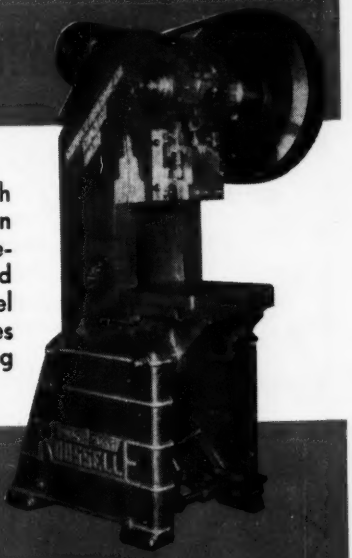
REPUBLIC'S rings with "THAT UNSEEN EXTRA QUALITY" cost no more.

RELY ON *REPUBLIC*

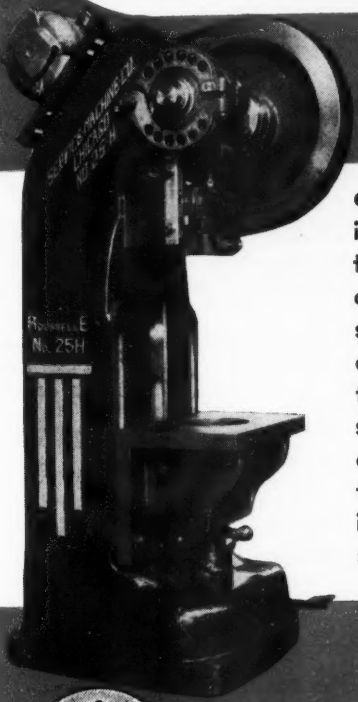
REPUBLIC GAGE

DETROIT 21, MICHIGAN

Rousselle
PRESSES



• The No. 3-OBI-25 ton Rousselle Punch Press embodies features that mean high production at low cost and dependable service. Ways are hardened and ground—Roller bearing flywheel —Press is easily inclined to 30 degrees by one man operating ball bearing inclining device from front.



• This 25-ton Rousselle Horning Press with adjustable bed table can be quickly and accurately raised or lowered to suit the die to be used. Press can be furnished with special table to permit a maximum shut die height of 28". Unique design permits slugs or blanks to fall through table without interference from elevating screw.

Visit Booth 1813 at A.S.T.E. Show

OTHER PRESSES: 5-10 TON OBI BENCH MODELS, 5-10-15 FLOOR MODELS 15-25 HORN WITH ADJUSTABLE BED...SEE YOUR DEALER OR WRITE

MFRS. OF Rousselle PUNCH PRESSES

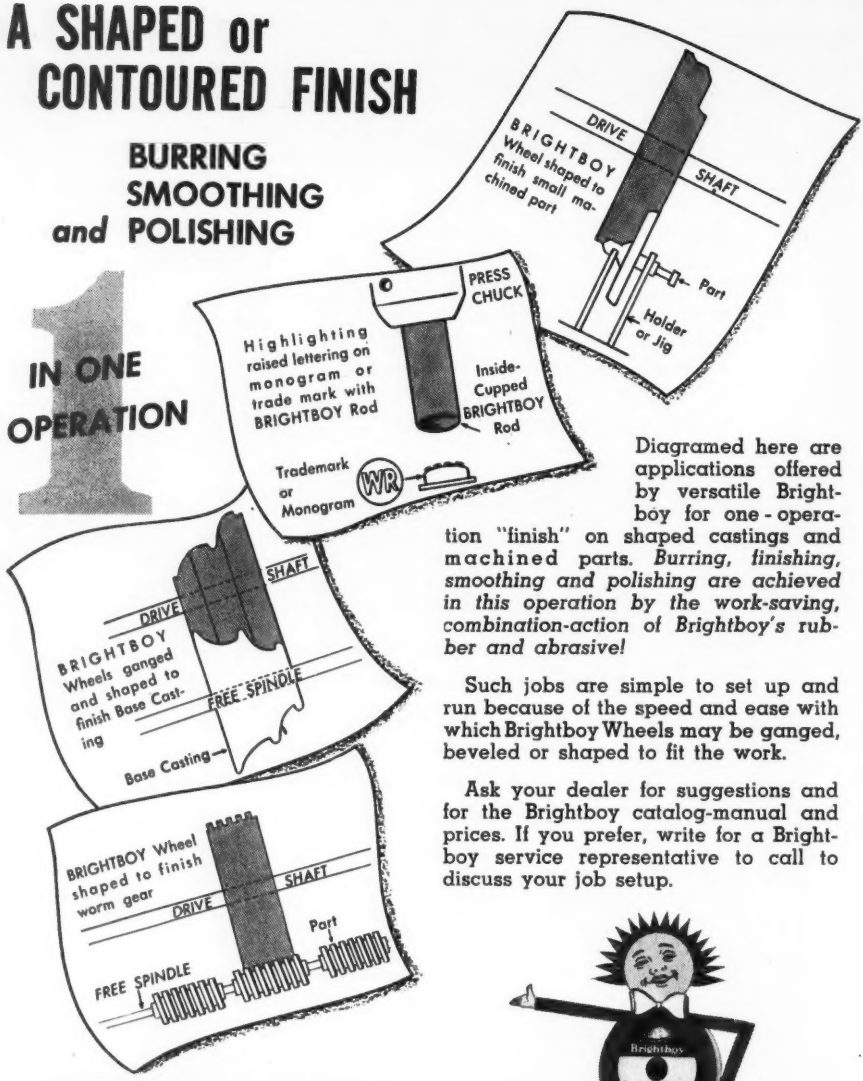
SERVICE MACHINE COMPANY

7622 S. ASHLAND AVE., CHICAGO 20, ILLINOIS

A SHAPED or CONTOURED FINISH

BURRING SMOOTHING *and* POLISHING

IN ONE OPERATION



Diagramed here are applications offered by versatile Brightboy for one-operation "finish" on shaped castings and machined parts. *Burring, finishing, smoothing and polishing are achieved in this operation by the work-saving, combination-action of Brightboy's rubber and abrasive!*

Such jobs are simple to set up and run because of the speed and ease with which Brightboy Wheels may be ganged, beveled or shaped to fit the work.

Ask your dealer for suggestions and for the Brightboy catalog-manual and prices. If you prefer, write for a Brightboy service representative to call to discuss your job setup.



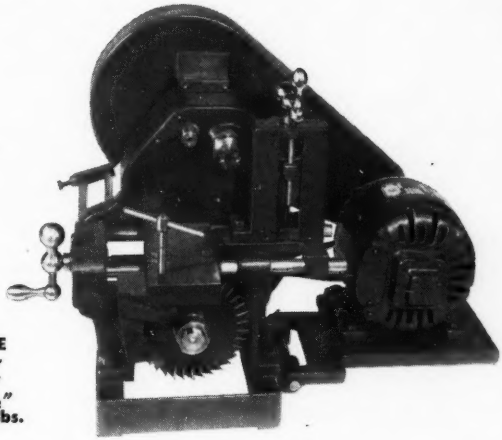
WELDON ROBERTS
Brightboy

BRIGHTBOY INDUSTRIAL DIVISION
Weldon Roberts Rubber Co.,
Newark 7, N. J.

HYLAND

COMBINATION MILLING MACHINE

For Machine Shop, Tool Room or Service Shop



HANDY SIZE
Length: 23″
Width: 14″
Height: 14½″
Weight: 150 lbs.

Handles Short Run, High Speed Jobs In a Hurry!

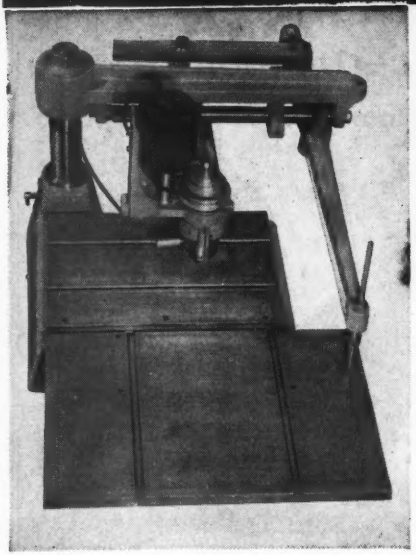
You can do it in a hurry on a Hyland! . . . and in far less time than it takes to set up a large machine! Perfect for large or small shops, the Hyland Combination Milling Machine has two-speed construction for fast, accurate cut-off of mild steel or brass, high carbon, alloy or tool steels to any length. Automatic stop may be set to cut lengths up to 15″. Handles bar stock of any shape from ¼″ to 1″ dia. Use standard 5″ by $\frac{3}{32}$″ or ⅛″ metal slitting saw. Mills flats, tangs, squares, Woodruff key slots and keyways. Adjustable depth stop. 1⅓″ vertical carriage travel. $2\frac{5}{16}$″ horizontal carriage travel. Requires ¼″ H.P. motor, 1750 R.P.M.

MODEL B (shown above) $209.50 (Less Motor and Cutting Tools).

WRITE FOR COMPLETE INFORMATION TODAY

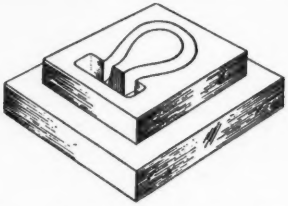
HYLAND MACHINE COMPANY
40 Potomac Street • Dayton 1, Ohio

Fast, Efficient, Economical Production of...



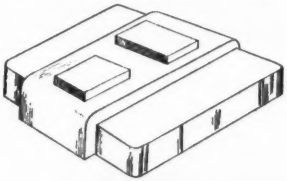
MILLING - DRILLING - ENGRAVING
BORING - PROFILING - ROUTING

The PHILBRO "CONTROL CUT" Model CC-3D is a 2 and 3-dimensional milling or engraving machine that will produce any required shape, line or contour from an enlarged master template. Note examples shown below.



Accurate, automatic milling and profiling is a simple production problem when done with the CC-3D.

Molds and dies easily and economically made by the Philbro "Control-Cut" Model CC-3D.



2 AND 3 DIMENSIONAL Model CC-3D

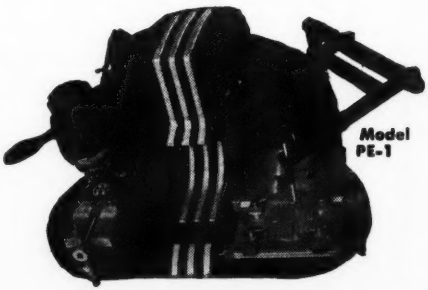
Control-Cut permits accurate profiling of parts, shapes or designs. All necessary boring or engraving easily accomplished.



Mass poduction obtained from one master template, without skilled operators.

***Pantograph Controlled* ENGRAVER**

Model PE-1. Widely used for rapid commercial and industrial production engraving of all machinable metals, wood, plastics, ivory, etc. • Built of the finest material and precision made in all details. • Does not require skilled operator. • Easily regulates depth of cuts. • Engraves area 5 x 5 and larger by resetting work.



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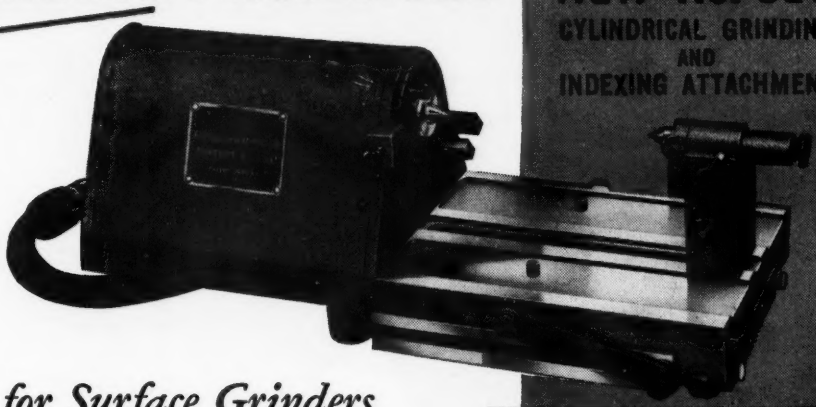
Send for detailed information.

AUTO ENGRAVER COMPANY, Inc.

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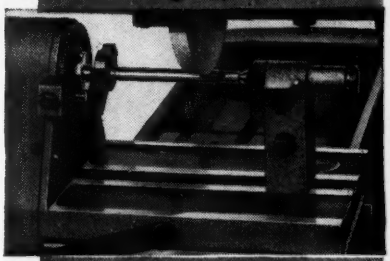
A SIMPLE WAY TO ENLARGE YOUR GRINDING FACILITIES

NEW No. 616
CYLINDRICAL GRINDING AND INDEXING ATTACHMENT



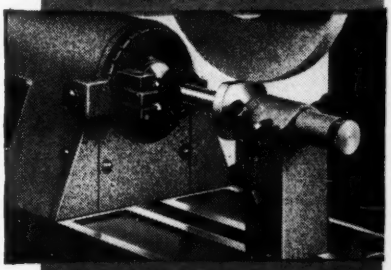
. . . *for Surface Grinders*

● The new Brown & Sharpe Cylindrical Grinding and Indexing Attachment is designed for dry grinding small cylindrical work, tapers and work requiring indexing. Adding No. 616 to your grinding room equipment is a simple way to enlarge your facilities and broaden the usefulness of your surface grinders.



Grinding work held between centers. Tailstock center is withdrawn by swing of lever.

Indexing is performed with headstock index plate or with interchangeable indexing spring chuck. Centers swing 6″ diameter; take work 5¼″ in length. Maximum grinding angle 45°. Motor completely enclosed, 1/60 H.P., 115V., A.C. Write for illustrated folder. Brown & Sharpe Mfg. Co., Providence 1, R. I., U. S. A.



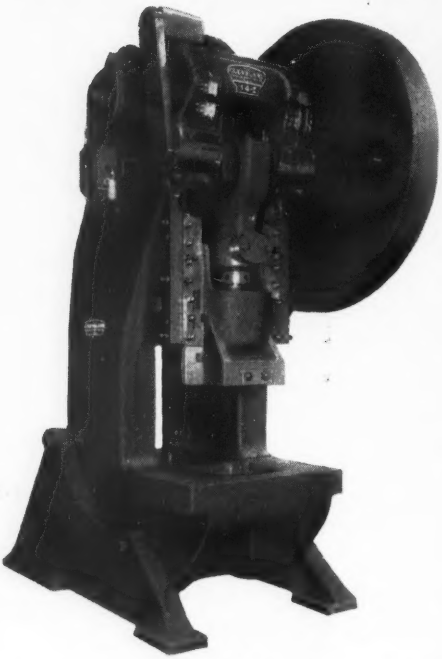
Grinding parallel flats using index plate . . . 24 slots. Locked or released by plunger.

Visit Our Booth 602, A.S.T.E. Exposition, Cleveland

We urge buying through the Distributor

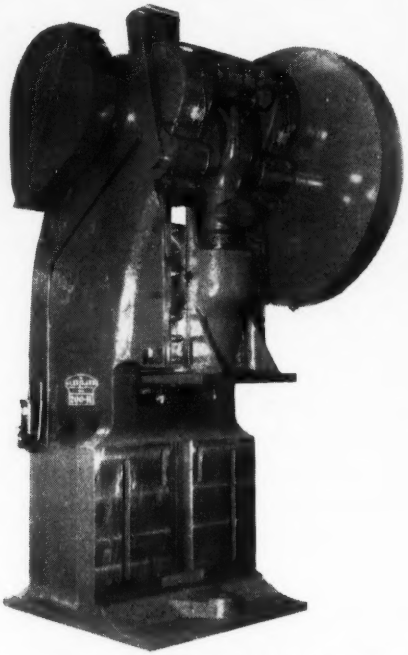
BROWN & SHARPE

Cleveland 200 TON CAPACITY Inclinable . . . Horning



This Cleveland 14-I Inclinable Press, which has a capacity of 200 tons, is equipped with an electrically controlled, air operated friction clutch and is arranged for belt to flywheel motor drive.

Specifications—Stroke of slide.....8″
Adjustment of slide.....4″
Area of bolster.....34″ x 48″
R. P. M.....30
Capacity .....200 tons



This illustration shows a Cleveland 14 H Horning Press with lower half of the bed designed to take special tables. The Press is equipped with an electrically controlled, air operated friction clutch and has air counterbalance to slide.

Specifications—Stroke of slide.....12″
Adjustment of slide.....4″
Face of slide .....24″ x 36″
R. P. M.....20
Capacity .....200 tons

The CLEVELAND PUNCH & SHEAR WORKS COMPANY
3917 St. Clair Avenue . . . CLEVELAND 14, OHIO

TO HELP YOU CUT PRODUCTION COSTS YOU ARE INVITED TO VISIT OUR EXHIBIT IN BOOTH 721, A.S.T.E. SHOW, CLEVELAND, MARCH 15-19.



Reduce the COST OF TOOLING

You can convert spindles to larger or smaller tapers—and extend the spindles in your present Drill Presses, Radial Drills, Turret Lathes, Boring Mills, etc.—to utilize their productive capacity to a greater extent.

IMMEDIATE DELIVERY
ON ALL POPULAR SIZES

LONGER WEAR AND BETTER PERFORMANCE

Made to exact specifications. The tang and hole ends are heat-treated for longer wear and maintenance of concentricity. They will outlast the ordinary soft sockets and perform with greater accuracy.

FURNISHED WITH MORSE TAPER HOLES AND SHANKS *Three Series* LONG • MEDIUM • SHORT

For details see page 215
in Scully-Jones Manual 500

Scully-Jones & Company

1909 SOUTH ROCKWELL STREET, CHICAGO 8, ILLINOIS

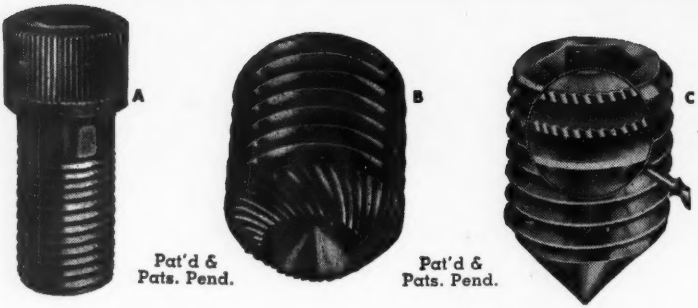
SWM-0848

Millions of these

UNBRAKO SOCKET SCREW PRODUCTS

Reg. U. S. Pat. Off.

- are in use !



(A) The *Knurled* head of the "Unbrako" Socket Cap Screw makes it slip-proof, fumble-proof and time-saving—even if the fingers and heads are oily: because it can be screwed-in faster and farther, before a wrench becomes necessary. (B) The *Knurled* cup point of the "Unbrako" Socket Set Screw makes it a SELF-LOCKER—the point digs-in and stays dug, regardless of extreme vibration. (C) The *Knurling* of this "Unbrako" Socket Set Screw, as shown, *swages* the threads so it becomes a most excellent "SELF-LOCKER," for use where points such as: flat, dog, cone and oval, which do not lend themselves to knurling, must be used. All of our patented "Unbrako" Set Screws, regardless of point, are excellent SELF-LOCKERS—so if it is imperative that your Set Screws stay put, write us, because we can lock most any Set Screw application.

"Unbrako" Products are sold entirely through Industrial Distributors.

See us at Booths 324, 326 and 328—
A.S.T.E. Exposition—
March 15th to 19th.

OVER 45 YEARS IN BUSINESS

Knurling of Socket Screws originated with "Unbrako" in 1934.

STANDARD PRESSED STEEL CO.

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SNOW FULL UNIVERSAL DRILLING MACHINE



The SNOW Full Universal Drilling Machine permits the drill to set its own rate of feed resulting in higher production and greater tool life.

Precision limit switches offer extremely accurate depth control and allow instant synchronization of the many types of air operated indexing and clamping fixtures and jigs which have been designed for use with this machine. Low pressure air control built into this full universal equipment, combined with quality design and construction results in a sensitive and sturdy production machine.

This machine is capable of operating as high as 6,000 strokes per hour and has been production-tested in thousands of installations.

We suggest that you submit sample parts and blue prints for specific recommendations, production estimates and tooling data.

SNOW MANUFACTURING COMPANY

443 EASTERN AVE., BELLWOOD, ILL. • SUBURB OF CHICAGO

NEW! WALSH NO. 38X PUNCH PRESS



THE VERSATILE 38-TON PRESS FOR

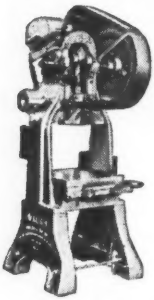
- PRODUCTION
- TOOL ROOM
- TEST RUNS

You get much in addition to economical production from this new, open back, inclinable punch press. Use No. 38X in your tool room for shearing-in dies and punches. Use it for die tryouts in place of a screw press. This high speed punch press gives exact indication of results on the production run . . . shows up defects in material at once, where the slower screw press would yield a perfect sample.

Large shut height and bolster plate area make Walsh No. 38X ideal for many notching, forming and die-casting trimming operations. Die space 11″ with a 4″ stroke; bed area 18″ by 26″; throat depth 12″. Stroke up to 6″ available in either flywheel or back-geared type. Variable speed or conventional motor drive.

No. 38X gives you all the standard design features that make Walsh presses strong, accurate, speedy, safe and economical. Write for full information.

Also New!
WALSH 28A ARCH PRESS



A 28-ton capacity arch press especially suited for your die-casting trimming operations; plastic, rubber trimming work; and sheet metal fabrication. Flywheel, back geared, or with gearhead motor.

WALSH PRESS & DIE CO.

4719 W. KINZIE ST. CHICAGO 44, ILL. PHONE ESTEBROOK 6700

DIVISION OF
AMERICAN GAGE & MACHINE COMPANY

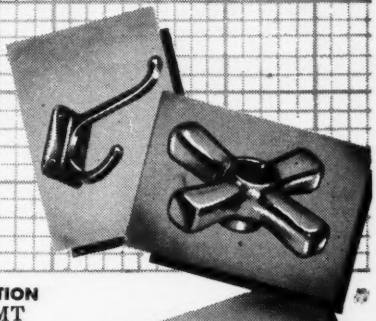
SIZE CONTROL CO. DIVISION — Precision Gages
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WACKER SALES DIVISION (*Affiliate*) — Precision Inspection Equipment

Engineering Representatives in Principal Cities

Die Cast Your Small Parts with

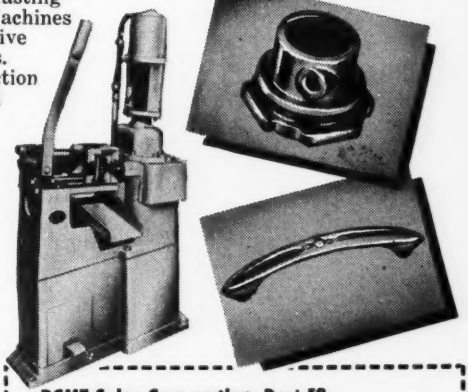
DCMT

DIE CASTING MACHINES



RAW INGOT TO FINISHED PRODUCT IN ONE OPERATION Your small metal parts can be produced on a DCMT Die Casting Machine – quickly and economically. Manufacturers now using DCMT Machines have eliminated up to 35 machining operations on a single casting – at the same time increasing production 500 per cent. You too can enjoy similar competitive advantages.

INEXPENSIVE DIES By eliminating expensive machinery, DCMT brings pressure die casting within reach of all industries. DCMT Machines are simple, low in cost, utilize inexpensive dies produced on pre-fabricated die sets. Single machine easily maintains production rate of 25,000 shots per week. Standard models cast zinc-, aluminum-, tin- and lead-based alloys.



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ON DISPLAY
IN ACTUAL OPERATION
A.S.T.E. SHOW
MARCH 15 - 19

DCMT

DIE CASTING MACHINES

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☐ Please arrange for me to see a DCMT Die Casting Machine in actual operation in my locality, without obligation.

☐ Send copy of your new booklet, *A New Era in Pressure Die Casting.*

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NIAGARA



The performance of Niagara Knives is the result of long experience in manufacturing not only knives but the shears upon which they are used. Niagara Knives are made in the Niagara Plant with every step including design, metallurgical specifications, heat treating, grinding and inspection under Niagara control. They are made in single and four cutting edge solid steel, laid steel and high speed types. Alloys and heat treat characteristics to suit every shearing need.

NIAGARA FACTORY REGRINDING SERVICE

Take advantage of Niagara factory regrinding service by the same skilled men and on the same precision machines used in making Niagara Knives.

Each Niagara Knife is reground in accordance with its own metallurgical and heat treat characteristics as recorded by serial number at the factory.

Prolong the life of your knives by having them reground by Niagara factory methods rather than by improvised methods.

NIAGARA MACHINE AND TOOL WORKS · BUFFALO 11, N. Y.

KNIVES

MADE BY THE MANUFACTURERS *of* POWER SQUARING SHEARS

Manufacturers of Presses, Shears, Machines and Tinner's Tools for plate and sheet metal work



Latest Type Niagara No. 1214 Power Squaring Shear

DISTRICT OFFICES: NEW YORK, CLEVELAND, DETROIT

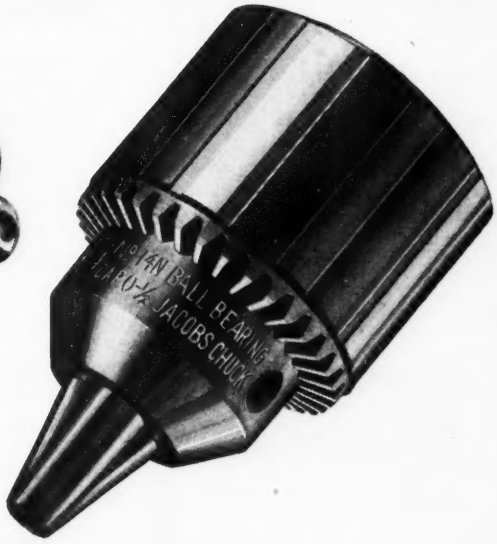

Roller Bearing Pillow Block — Cast Iron Body
Roller Bearing Flanged Pillow Block
Roller Bearing Pillow Block
Flanged Roller Bearing
HEIM
FLANGED TYPE
SELF CONTAINED
ROLLER BEARING
Full quota of rollers providing maximum load carrying capacity are mounted in a stamped outer casing with an inner roller race. Design effectively excludes dust and foreign matter and efficiently retains its lubrication. Used alone or supplied from stock as various models of pillow blocks, the new Heim Roller Bearing is a simple, efficient, low cost advance in roller bearing applications. Complete bulletin on request.
HEIM ALSO MAKES:
Unibal Spherical Bearings —Rod Ends—Die Polishing Machines.
THE HEIM COMPANY
FAIRFIELD
CONNECTICUT

Jacobs Ball Bearing Super Chucks hold tools with the tightest practical grip ever devised. Progressive engineering and accurate, durable construction guarantee it. That's why Jacobs Chucks continue to lead the field. The Jacobs Manufacturing Co., Hartford 2, Connecticut.



Lines of beauty ...muscles of steel

Jacobs Chucks



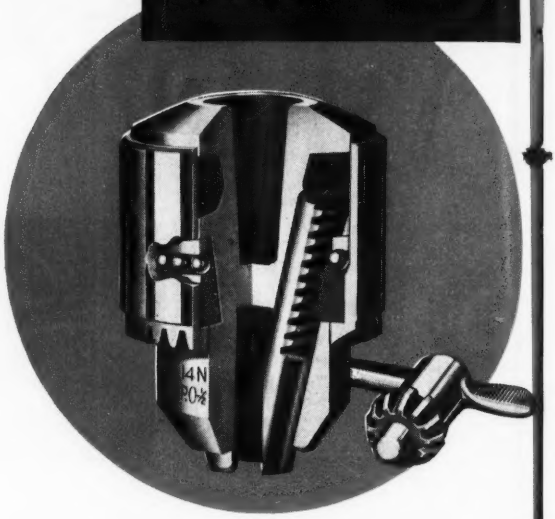
FOREMOST IN CHUCKS · FIRMEST IN GRIP ·

No other chuck holds so tight and true

Compare the grip of the Jacobs Ball Bearing Super Chuck with that of any other key-operated chuck. You'll find its tremendous gripping power is in a class by itself. In fact, you wouldn't even have to use its key to equal the grip of the others.

Yes, the famous Jacobs ball bearing construction gives you a *plus* in gripping power. In accuracy, too. Holds tools always on dead center. That's because precision craftsmanship keeps the jaws of the Jacobs Chuck parallel to closest tolerances throughout the entire tightening action.

This cutaway view of a Jacobs Ball Bearing Super Chuck shows some of the reasons for its tremendous grip and fast, easy operation. Notice the new inserted thrust race for smoother action. The nut is new, too. Made of heat-treated alloy steel which increases former carrying capacity by 400%.



Smoother, sturdier than ever

You know about the accuracy, gripping power, speedy operation and long life that have made Jacobs Ball Bearing Super Chucks so popular in the past.

Now something new has been added. An inserted thrust race with continuous deep groove lets the frictionless ball bearings do an even better job. A heat-treated alloy steel nut gives four times the load-carrying capacity of former construction . . . adds extra years of service life.

IF IT'S A

Jacobs

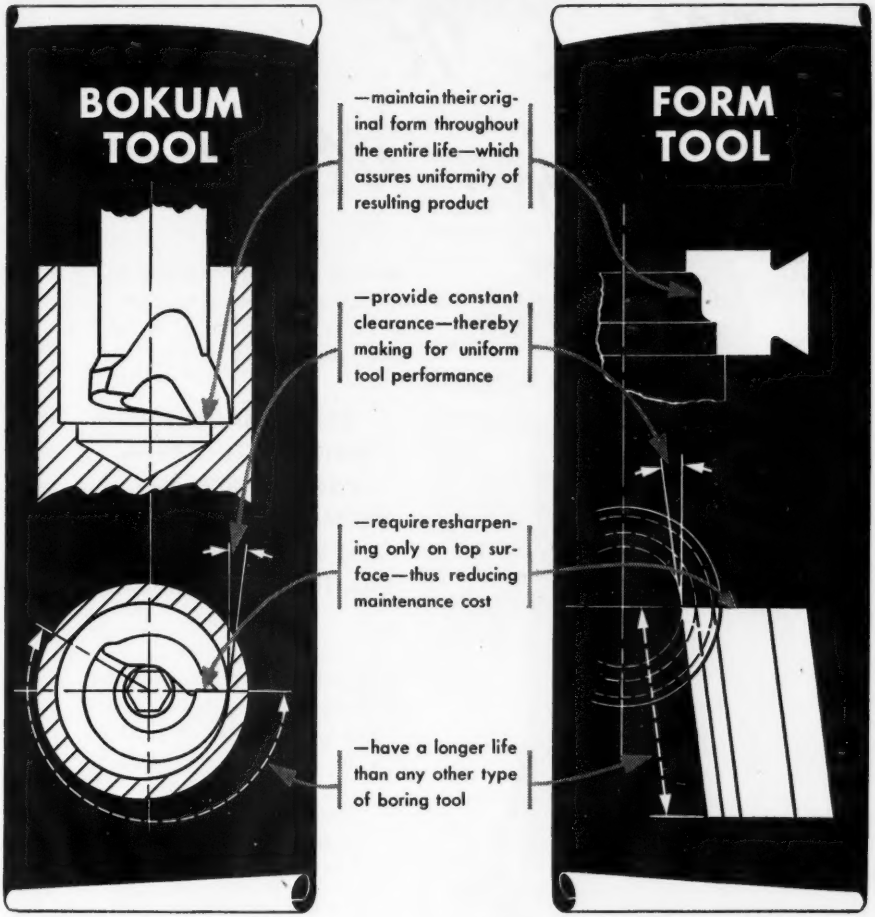
. . . IT HOLDS

For complete data

For full details about the way Jacobs Ball Bearing Super Chucks, made in 6 capacities from 0-¼" to ⅝-1", help you get more and better production out of drilling machines, lathes and screw machines, ask your INDUSTRIAL SUPPLY DISTRIBUTOR for Bulletin 48-N. The Jacobs Manufacturing Company, Hartford 2, Connecticut.

STOCKED BY YOUR INDUSTRIAL SUPPLY DISTRIBUTOR

Like external form tools
BOKUM BORING TOOLS



AVAILABLE IN 3 STYLES { STYLE A — *for general boring* / STYLE B — *for facing and bottoming* / STYLE C — *for internal threading* }

Ask for catalog B1139 for super high speed tools and for B398 for carbide-tipped.

TRADE MARK REG. U. S. PAT. OFF.

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SINGLE POINT BORING TOOLS—INTERNAL THREADING, BOTTOMING AND FACING TOOLS—CARBIDE TIPPED TOOLS

Mark It for Market



MODEL
175
HYDRAULIC

Modern Marking Machines now enable most manufacturers of metal components to identify their products at trifling cost.

**TRADE MARKS—
MANUFACTURERS—
PART NUMBERS—
PERMANENTLY ROLLED
ON YOUR PRODUCTS
WILL HELP YOU MARKET
THEM.**

Send prints of parts, showing required marking and its location on part with hourly production for free recommendation.

Illustrated at the left is Model 175 Hydraulic Marking Machine.

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GTS

GEO. T. SCHMIDT, INC.

**1806 W. BELLE PLAINE AVE.
CHICAGO • 13 • ILLINOIS**

MODEL 6-12

THE TOOL MAKER'S
"Personal Grinder"

BOYAR-SCHULTZ
BENCH MODEL
SURFACE GRINDER

This sturdy, accurate Surface Grinder, mounted on the tool maker's bench, is quickly available for many small jobs that would otherwise go to the Grinding Department, interrupting important production runs. It is built with many new features and to the well known Boyar-Schultz standard of quality for close tolerance grinding on tools, dies, jigs, fixtures and gauges. An ideal tool for the small shop.

Write for Catalog and New Low Prices

PEDESTAL FOR MODEL 6-12 GRINDER

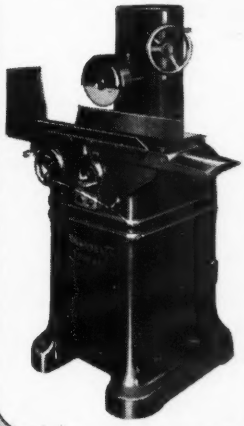


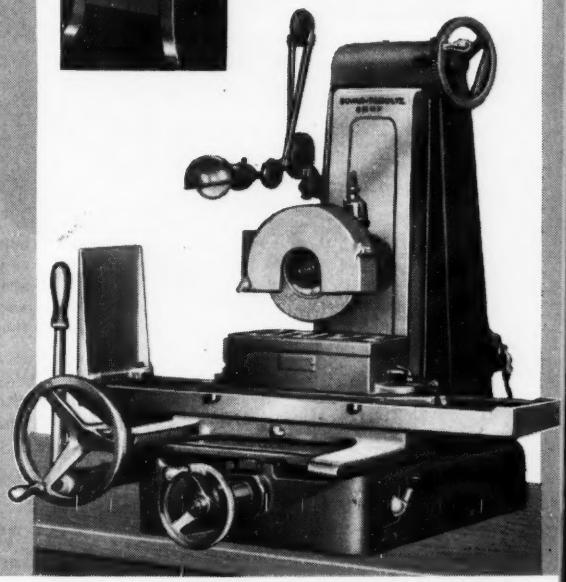
Made from heavy gauge angle iron, welded for rigidity and strength. With it, Model 6-12 Grinder becomes a Pedestal Machine.

MODEL 6-18
SURFACE GRINDER

An extremely accurate Surface Grinder, highly recommended for tool room work and gauge grinding. Its rugged construction and superior engineering assure constant accuracy for a longer period than is usually expected of the ordinary surface grinder.

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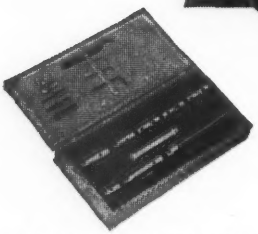
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THE SINGLE BORING BAR for all your boring

For use on any Boring, Milling, Turret, or Automatic Screw Machine, and designed for practically all boring in manufacturing operations.



For the first time, rigidity in an adjustable bar is assured by ADJUSTO's special-design dovetailed section in the head. This section, operated by #40 ground and hardened screw, slides on ground and polished surfaces thus eliminating inaccuracies caused by wear.



Each Adjusto set is packaged in convenient plywood container designed for ease in handling and safe storage.

1 MICROMETER ADJUSTMENT....accurate to .0001"
2 ANY LENGTH BORE.....up to 21"
3 ANY DIAMETER BORE.....up to 16"
4 USES STANDARD SQUARE TOOL BITS

Your inquiries welcome—Send for full particulars

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822 FRICK BUILDING
PITTSBURGH 19, PA.

PROSSER CARBIDE GRINDERS

. . . Pay for themselves—fast . . . in TOOLS SAVED!

Shop experience proves it: Prosser Grinders reduce waste and breakage of costly cemented carbide tools — and help them deliver more cuts between grinds. Also equally effective for stellite and high-speed steel.

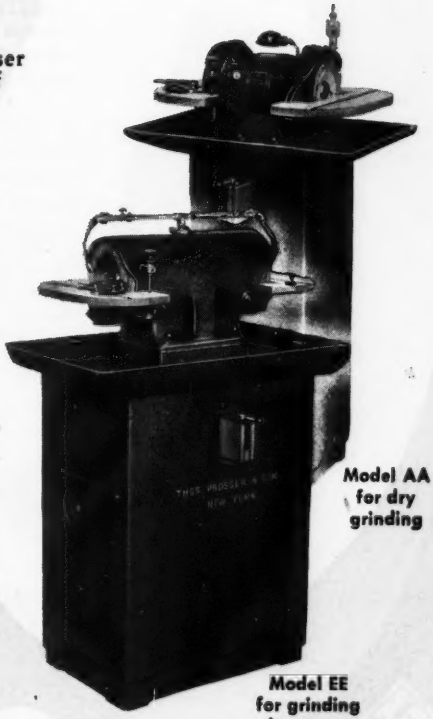
QUICK SETTING. The famous Prosser index device speeds setting of table to desired angle. Table need never be raised or lowered — and once set, it stays put.

MORE WORK PER WHEEL. Easy compensation for wheel wear. Wheel face can be kept close to edge of table . . . wheels can be used up practically 100%. Fewer wheel changes, more time and money saved.

Prosser Carbide Grinders are made in bench and floor models, for rough grinding and fine finishing, wet or dry. Chip-breaker and drill-grinding attachments.

Write for literature on money-saving Prosser Grinders — designed by the same Prosser engineers who introduced cemented carbide to American industry.

Dealerships available



Model AA for dry grinding

Model EE for grinding dry or wet

THOMAS PROSSER & SON Established 1845 120 Wall Street, New York 5, N. Y.

ARMSTRONG

Drop Forged "C" CLAMPS

More Reliable...

Every characteristic essential to absolute reliability is built into ARMSTRONG Drop Forged "C" Clamps — maximum strength, extreme stiffness, extra large Tempered and Tested Screws, better "Tool Sense" and design.

That is why it is a good policy to shandardize on ARMSTRONG "C" Clamps.

As one of the 9 major ARMSTRONG lines your local dealer carries ARMSTRONG "C" Clamps in "Heavy Duty," "Medium Service," "Extra Deep Throat," "Spatter Resisting" and "Toolmakers" designs, in a wide range of sizes.





ARMSTRONG BROS. TOOL CO. *"The Tool Holder People"* 5228 W. Armstrong Ave. CHICAGO 30, U.S.A.

NEW YORK • SAN FRANCISCO

MODERN Machine Shop

MARCH, 1948 VOL. 20, NO. 10

CINCINNATI, OHIO

This Month

In the feature article this month, "Progressive Die Design, Part II," Mr. Hinman continues his discussion of the manner in which the output from a high speed progressive die may be doubled by designing a scrap strip that carries two rows of blanks. Page 124.

If the conflicting views on the causes and cures of inflation offered by economists and government officials have confused your thinking on this subject, we feel sure that you are looking for a forthright statement which may help you to crystalize your thoughts. It is our good fortune to be able to give you a clear report on inflation by W. B. Peirce, President, American Society of Tool Engineers. His article—"One Answer to Inflation"—begins on page 130.

Between pages 140 and 242 you will find the story of the American Society of Tool Engineers convention which is being held this month in Cleveland, Ohio. More than 50,000 key industrialists are expected to attend the Industrial Exposition that is being held in conjunction with the convention. Since no period in history has produced as many improvements in manufacturing equipment and techniques, materials, methods and tools as has the six years since the beginning of the war, the Industrial Exposition takes on added significance. This Exposition will provide an opportunity for key production men not only to see but also to compare the latest developments of leading manufacturers. Technical sessions and plant tours will form an important part of the ASTE convention program.

A short, illustrated article "The House of Human Relations" is presented on page 246. Mr. Dillard Bird explains "The House of Human Relations" as an architectural symbolism of the interrelationship of human relations in business and industry.

A report of the American Society for Metals tri-chapter "Symposium on Non-Destructive Testing" to be held in Cincinnati, April 8, 1948, is found on page 252. The names of the speakers, together with a short resume of the subjects on which they will speak, are given in this report.

The "News of the Industry" section will be found on page 258.

Progressive Die Design, Part II

In this article the author describes a method of designing a double die which utilizes the scrap metal to feed two rows of workpieces through the several stages preceding the last and completing operation.

By C. W. HINMAN
Designing Engineer

AS pointed out in Part I of this series of articles, practically any punch press operation that can be performed in an individual die can successfully be performed in multiples by the use of a progressive die in which the operations are performed in consecutive order.

The present article continues the discussion of progressive die designs and, in particular, the manner in which the output from a high speed progressive die may be doubled by designing a scrap strip that carries two rows of blanks. Ordinarily, it is not good practice to attempt to run more than a single row of progressive operations because of the complications which sometimes develop. For example, a cutting member of the die may break and thereby cause the expenditure of an excessive amount of "down time" to replace the broken part. In the case under discussion, however, the operations consist principally of drawing, redrawing, and bending; therefore a double row die was considered as a practical and trouble-free design.

The measurements for the blank development shown in the illustration Fig. 5 are derived from the dimensions shown on the three views of the sheet brass electrical terminal lug shown in the same illustration. Hundreds of thousands of this type of lug are used as primary connectors in the electrical equipment manufacturing industries.

In figuring the length of the blank development, an allowance must be made for the right angle bend. The neutral bending line is located at one third of the material thickness from inside the square bend. In this case, the allowance is 0.013 inch, a figure derived from a table of bends.* The developed length of the blank therefore is 0.3125 inch plus 0.225 inch plus 0.013 inch or a total of 0.550 inch.

Before the die can be designed it is first necessary to make a layout of the scrap strip as shown in Fig. 6. Next, by referring to the scrap strip design, a layout for the five drawing or cupping operations is made and dimensioned as shown in Fig. 7. From these two

**This table is found on page 426 in Press-working of Metals, a book written by the author of this article and published by McGraw-Hill Book Company, New York 18, N. Y.*

layouts, the final design of the ten-station progressive die as illustrated in Fig. 8 can be determined.

Shearing a Center Slit

To facilitate the drawing operation in which the cups are formed, it is necessary to cut longitudinal relief slits in the middle of the metal strip. These relief slits divide the strip so that the metal in each half can freely be drawn into cup shape. Thus the cups are drawn in pairs, one on each side of the slit. Slitting of the metal strip is the first operation as shown at the right in Fig. 8.

The sheared slits are stretched open when the metal is forced into the cup portion of the die, thus forming both a series of diamond shaped openings and drawn arcs as shown on the edges of the scrap strip. The slits are sheared by the face of the female punch **F** which, when it descends, makes the cut against the male punch **W** as shown in the front elevation of the die. See illustration Figure 8.

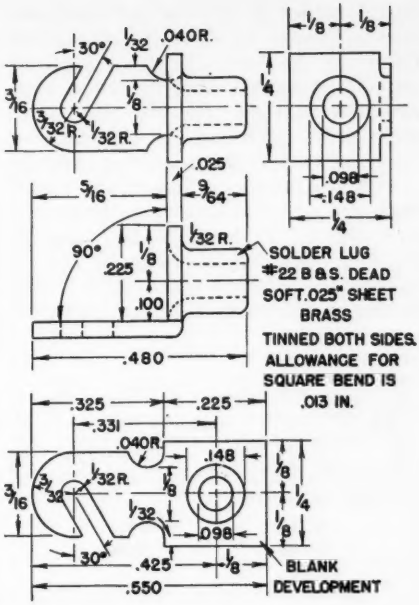


Fig. 5—Drawing of an electrical terminal lug to be produced at high speed from sheet brass.

Features of the Die

The cups are drawn up into hardened die bushings which are press fitted in punch block **b**. The five drawing punches **X**, **Y**, and the three at **Z**, have shouldered heads and are supported on a hardened back-up plate **S**. The punches are secured in punch plate **R** and slide freely through stripper plate **Q**.

The ejector punches, **I**, **K**, **L**, and **M**, operate above the drawn cups and thus push the cups out of the die when the press ram ascends. Coiled springs positioned above the ejector punches in

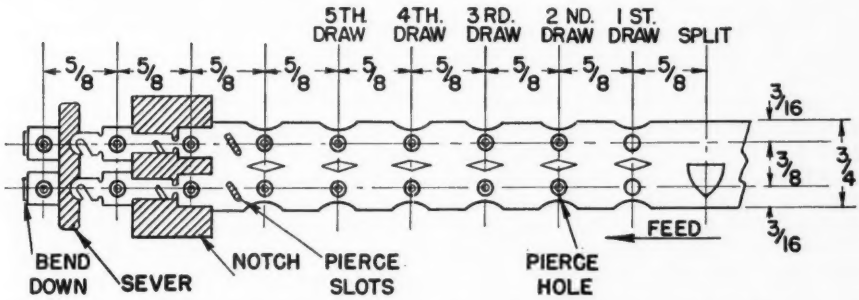


Fig. 6—Development of scrap strip, showing the order of consecutive die operations.

punch holder **B** provide the compression necessary to eject the workpiece from the die bushing. Two push-off pins **J J**, also activated by coiled compression springs, prevent the scrap strip from adhering to the face of punch block **b** as the press ram ascends.

Punch **d** pierces a hole in the top of each cup which is subsequently opened to 0.098-inch diameter in the final redrawing operation at station 6. The die is equipped with an extra-thick punch holder as shown at **B**. The extra thickness provides room for the operation of the long lengths of coiled compression springs that activate the ejector punches.

Spring-pad stripper plate **Q** is held secure by means of four bolts, and the spring-pad itself is actuated by six coiled compression springs which are located beneath it. These springs are located in "blind" holes which are bored opposite one another both in the stripper plate and punch plate **R**. Both the stripper bolts and springs are omitted in the drawing to avoid confusion of lines.

Spring-pad **P** is located around the notching die openings at stations 7, 8, 9, and 10. The function of the spring-pad is to "strip" the work from the punches which make the six cuts as shown by the section-lined die openings in die block **U** in the plan view of Fig. 8. An additional function of stripper plate **P** is to hold down the severed work on die block **U** while the press ram ascends and withdraws pilot punches **h**. Stripper bolts and springs for **P** have been omitted in the drawing, but the toolmaker will understand that they are needed and should be added.

Notice in section **a**—**a** that notching punches **G** are provided with $\frac{3}{16}$-inch guiding heels that enter the die openings prior to the cutting edges on the punches. This feature avoids nicking or shearing off of the cutting edges on the punch and die members.

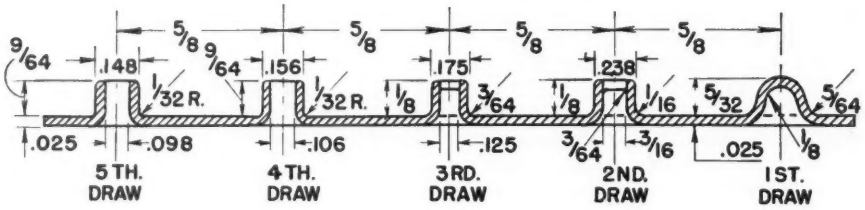


Fig. 7—Drawing, piercing, and redrawing of five cupped shells in progressive order.

Operation of the Die

The strip is fed from right to left from a large coil of stock placed on a reel at the right side of the press. Either hitch feed or automatic feeding rolls can be used. The strip enters through a guiding slot cut in block **T**, and is then advanced into a guiding channel $\frac{1}{16}$-inch deep which is cut into spring-pad **Q**. After all the operations have been consecutively performed, the forward end of the strip contacts stop-block **V**, and is aligned by entering the two V-stops.

The die, as shown in Fig. 8, is in the closed position which is at the extreme down-stroke of the press. As the ram ascends, spring-pad **Q** moves upward and lifts the strip and cups from the drawing punches, while the ejectors in the punch holder, and two push-off pins in punch block **b**, eject the drawn cups so that each strip is free to be advanced to the next station.

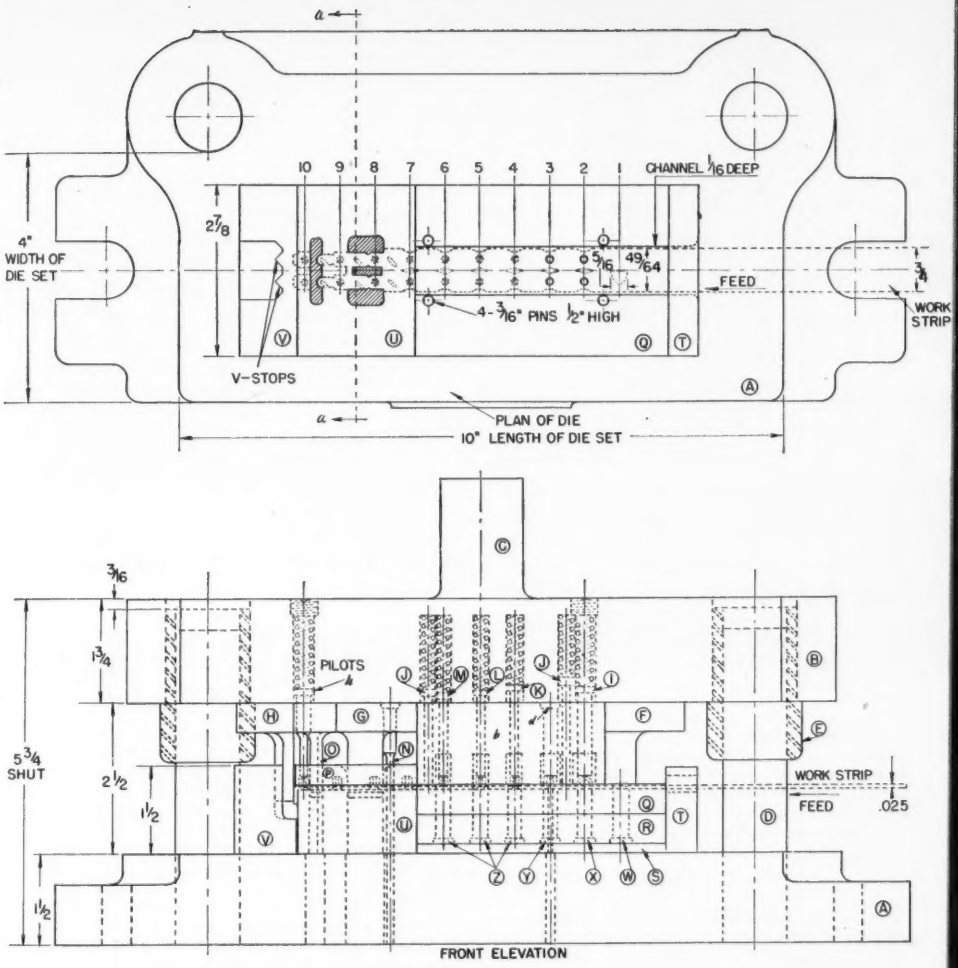
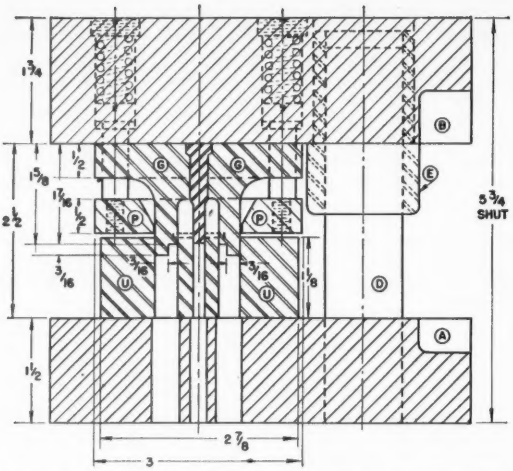


Fig. 8—Design of double-line production progressive die as developed from the scrap strip.

After the blanks have been cut to outline on the surface of die block **U**, and the two blanks are advanced side by side into the Vees in stop-block **V**, the next descent of the punches forms down the right angle bend by contact with punch **H**. Spring pilots **h** enter the 0.098-inch diameter holes to align the work, and spring-pad **P** holds the blanks down on block **U** while pilots **h** withdraw in ascent. A blast of compressed air from a conveniently attached nozzle blows the finished pieces from the die and into a container behind the press.

The die set is available with two guide posts in the rear. Progressive dies designed for use in Henry &



Enlarged drawing of Section A-A in Fig. 8.

Wright Dieing Machines, or the Ferracute Super Speed Presses, would ordinarily be provided with four substantial guide posts and phosphor bronze guide bushings. Using a four post die set prevents deflection of the punches which result in sheared cutting edges.

The die which we have discussed in this article may be operated at 125 press strokes per minute in a gap-frame press. At this speed, a possible gross output of 250 finished pieces per minute, or 15,000 per hour can be obtained. The net output would be about 10 per cent less, or 13,500 pieces per hour. If this job were run in a Henry & Wright Dieing Machine of a Ferracute Super Speed Press the output could be doubled.

(The Third Article of This Series Will Appear in the April Issue.)

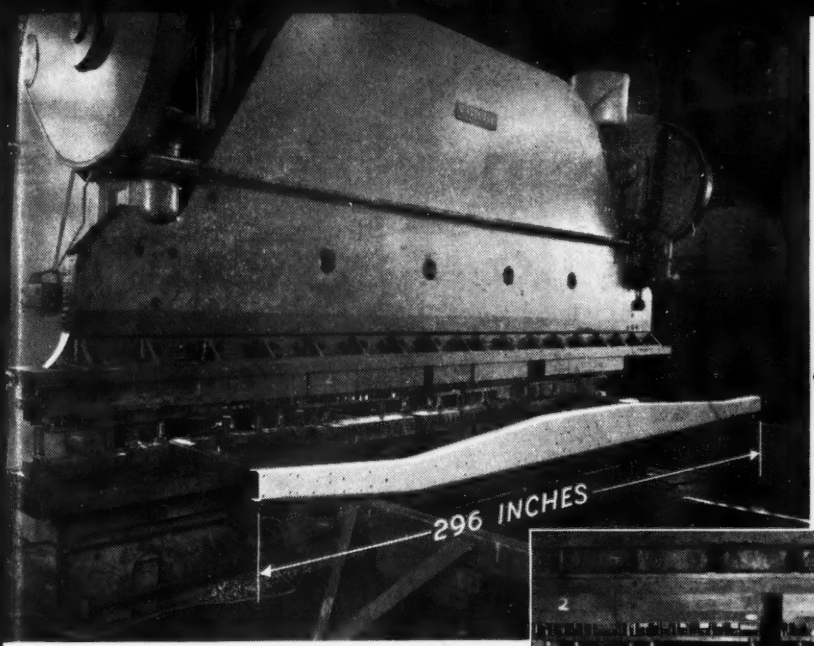
Lassy Single - Spindle Tapper and Threader, a hand tapping machine for bench or wall mounting, is illustrated and described in a leaflet prepared by the Lassy Tool Co., Plainville, Conn. Specifications of the unit are included. Copy free upon request.

S. S. White Flexible Shafts. The S. S. White Dental Manufacturing Co., Industrial Division, 10 E. 40th St., New York 16, N. Y., is now distributing a folder which illustrates and describes the use of S. S. White flexible shafts in developing a machine for putting gold or silver edge lines on chinaware on a mass production basis. Copy free upon request.

Nilco Dial Snap Gage, product of the Nilsson Gage Co., Inc., Poughkeepsie, N. Y., is fully illustrated and described in a four-page folder prepared by this firm. A table giving model numbers and ranges of the gage is included. Copy free upon request.

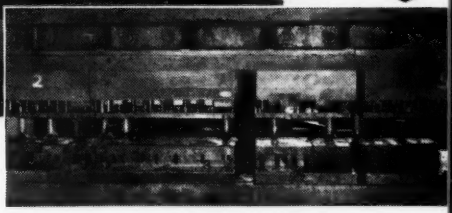
Minerva Imported Swiss Stop Watch, a feature of which includes a non-breakable coil-spring mechanism that is claimed to make the watch practically free of any breakage or wearing out, is featured in a four-page bulletin issued by the Herman H. Sticht Co., Inc., 27 Park Pl., New York 7, N. Y. The bulletin illustrates and describes a wide variety of watches, including 1/5th-second timers, 1/10th-second timers, 1/100th-second timers, decimal timers, pocket chronographs, and wrist chronographs. Copy of Bulletin No. 576 free upon request.

Temcometer Series 1000 Temperature Controller, an instrument which is designed to provide for infinitely variable control of the power supply to electric heating devices where pyrometric indication of temperature is unnecessary, is pictured and described in a circular now being distributed by the Thermo Electric Manufacturing Co., Dubuque, Iowa. Prices and specifications of the unit are included. Copy free upon request.



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W. B. PEIRCE

One Answer to Inflation

By W. B. PEIRCE

President, American Society of Tool Engineers

Of the many suggestions to combat inflation the one presented here stands out unmistakably clear. To ignore it may mean chaos in our time.

INDUSTRIALISTS, economists, business men, government officials and other interested persons agree that a solution to the problem of the inflation which threatens to engulf America can be found in the word "production"; where disagreement enters the picture is in making plans to accomplish the desired result. Government ownership, changes in the Minimum Wage and Hour Act, bonuses, export controls and many other expedients have been offered as possible solutions and all of them have been vigorously opposed by various groups.

Business men see in government ownership and operation of plants a threat to the foundations of American economy, free competition and free enterprise. Labor violently objects to changes in working hours, overtime pay and other provisions of the Wagner Act. Economists insist that bonuses and subsidies would merely add to the present inflation. The compelling need for aid to starving Europe is shouted as a reason for maintaining and even raising present levels of exports. Furious debate, with scattered communistic voices raised on both sides, has so far accomplished little except to make everyone aware of the necessity for doing something about checking inflation and doing it quickly.

Invariably in the past the classic and previously effective economic law of supply and demand has functioned to alleviate scarcities by attracting additional persons to a field where shortages exist with their accompanying high prices, resulting in additional production and consequent price leveling. In a free economy operating on a competitive basis men would rush to enter the baking business, for example, if demand far exceeded the available bread supply and forced prices up. The added production would quickly bring prices down as competitors challenged the position of the lone baker in the business and caused supply to catch up with demand.

But suppose that in such an hypothetical community there are also

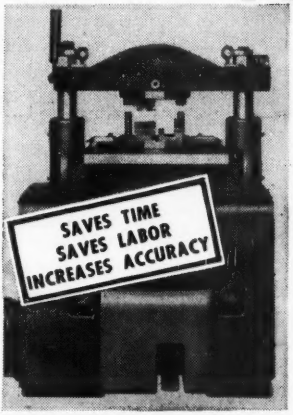
shortages of fish, candles, cloth, milk and other commodities and that the available supply of manpower is inadequate; then the only way to overcome the shortages would be to import goods to meet the short supplies, bring in labor from the outside, or impose rationing. American economy is in just such a predicament at the present time because its manpower is inadequate. Statistics show that more than 60 million persons are gainfully employed in the United States today, a working force greater even than that existing during the war period. The shortage is further indicated by pages of "help wanted" advertisements in newspapers all over the country.

Importing labor is out of the question, because of objections from unions, lack of housing, shortages, and similar reasons; and importing short commodities from abroad would only make matters worse because the rest of the world is in even worse straits than we are with its economy tottering because of the ravages of war and with its production facilities either totally destroyed by bombs and shells or faltering because of material shortages. Rationing is no solution either. It might for a time alleviate scarcities if coupled with price controls, but such a system is contrary to traditional American free enterprise and if prolonged would surely lead to an even more pronounced "police state" condition than was the case during the war. No American who believes in free competition which has made our economy the envy of the rest of the world wants to submit to rationing; because actually it is governmental control of the flow of commodities.

It is very evident that "production" alone has the power to halt inflation. And that mass production or the "American System" as it is known abroad is the one technique that can provide adequate assistance to us in

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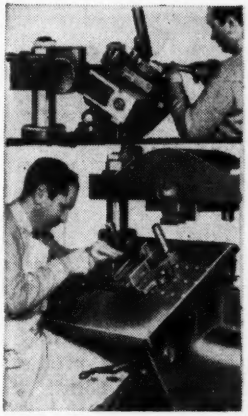
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this emergency. Although frequently overlooked in economists' discussions of the subject, it is in large part the source of the wealth and well-being of Americans. This is because it results in higher productivity per worker per hour in America than in any other country. In prewar days the average American coal miner produced twice as much coal as the German coal miner and two and one-half times as much as the British coal miner. An American blast furnace worker's production averaged three and one-half times as much as the British worker's; steel production was four times as much; radio production five times more; and so on.

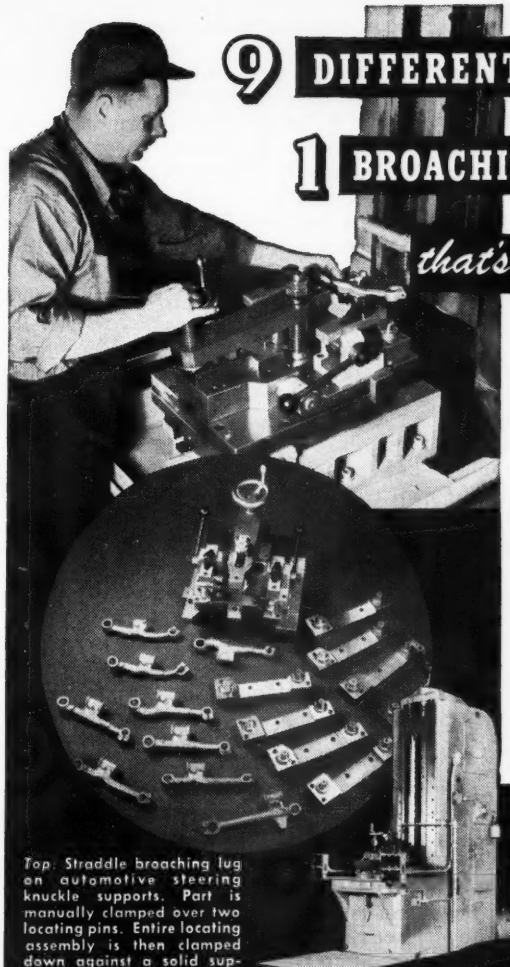
British and other foreign workers are as skilled and certainly work as hard as American workmen but they lack suitable equipment; the reason for the higher American production per man hour is **tools.** Average investment in tools per worker in American industry is much greater than abroad, averaging more than $7,000 per employee. Industry overseas has failed to perceive the advantage of increased production gained by properly equipping the workman and this is the essential difference between their industry and ours. America has learned that mechanization, use of machines and tools to perform work which previously required tedious hours of back-breaking human labor, increases production tremendously and the records of modern industry prove this to be true.

If the prewar Ford automobile had been made by slow hand labor without the aid of special machinery the estimated cost to the buyer would have been $17,850 and, because of the high price, only about 50 Americans each year could have been considered as possible purchasers. Contrast this with today's mass production of automobiles in U. S. plants, totaling more than 100,000 vehicles weekly. Back in 1902 five men were needed to accomplish the same amount of work on an automobile that one man does easily today although the work week has lessened from sixty and seventy-two hours in a six-day week to forty hours in a five-day week. When five men were needed to do what one man does now, motor vehicles cost huge sums and only the wealthy could buy; the market was therefore restricted and production was low. When new machines and tools and better ways of using them were introduced it became practical to make better automobiles at lower cost, prices promptly dropped to within reach of thirty million Americans—and they bought automobiles. Mass production has brought into existence more than 65,000,000 automobiles already made and sold. Use of motor vehicles in the United States has increased 4,625 times in less than 50 years. In 1900 there were only 8,000 cars in America, about one car for each 9,500 persons; today there are 37 million cars, or one for each four persons.

Some few people contend that the use of machinery deprives men of jobs but if this were correct four out of five persons employed in the automotive industry would be jobless today and 1947 employment would not have stood at an all-time high with nearly one million production workers and salaried employees in this one field. Back in 1899 only 3,700 motor vehicles were built, 2,200 workers were employed and the output per employee was one and one-third units; in 1947 mass production built more than five million vehicles, 963,000 workers each turned out 5 and 2/10 vehicles with far less effort than their 1899 prototypes expended because of the crude methods of those early days. Machinery creates jobs and because of mass production methods more than **twenty** times as many persons are employed today in the automotive industry as in 1905.

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Top: Straddle broaching lug on automotive steering knuckle supports. Part is manually clamped over two locating pins. Entire locating assembly is then clamped down against a solid support. *Center:* Shows the broached parts, master fixture, and nine interchangeable inserts. *Bottom:* AMERICAN SB-48-15 single ram surface broaching machine.

This *American*-designed broaching job achieves real tooling economy. One master fixture and nine easily interchangeable inserts are used on an *American* SB-48-15 single ram surface broaching machine with receding work table. Thus equipped, the machine broaches the king pin boss on nine different automotive steering knuckle supports. Taper wedge adjustments are used behind the broach sections to accommodate variations in the length of the king pin boss on the parts.

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Mechanization cuts the cost of production per unit and enables the production of many times as many units whether automobiles, alarm clocks or cans of peas. As the cost per unit lowers more and more persons are able to buy the article and the market is broadened; when it is a desirable item, lowered cost to the purchaser inevitably results in more buyers and a tremendous demand; this in turn leads to the employment of large numbers of workmen to fill the new jobs created in the effort to meet that demand.

The manufacturer or farmer, or anyone else who expands his operations expects to encounter certain problems. The manufacturer must build or rent additional space, install more machinery, obtain financial backing, and train additional workmen for the new jobs involved. The farmer is in a similar situation, even if he only rents a few extra acres on which to plant wheat or corn or cotton. He must use his plow for longer hours, provide space to store the added crop and often must hire additional farm labor. Training the additional workers frequently is the most difficult part of the expansion program, as witness the innumerable training schools set up in war plants and continued when they were converted back to peace time activities.

The question of labor relations must be considered, especially in the case of the manufacturer or processor, because labor organizations grow by leaps and bounds as factories expand and with the increase in numbers of workmen a larger influence is exerted upon the management-labor section because of the new operation. The employer immediately runs into labor difficulties if he attempts to set up new and different work standards and it is axiomatic that new plants have more labor disputes than those which have carried on negotiations over a period of time until relations have become stable; this is generally accepted as one of the problems to be encountered during expansion.

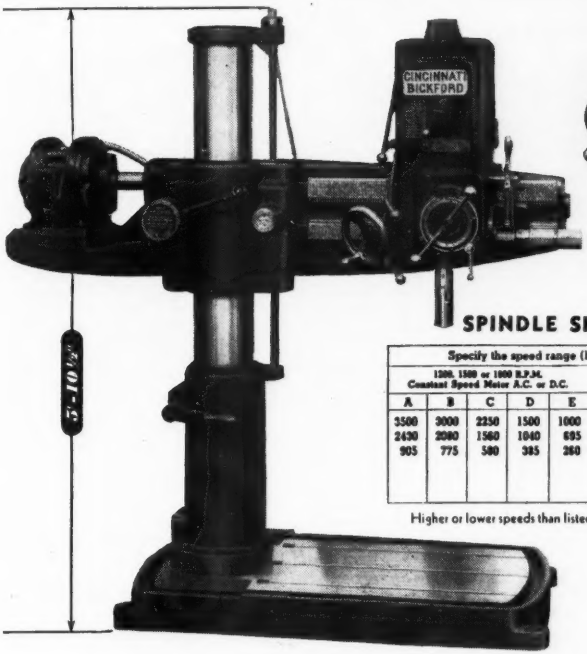
From the standpoint of production an important characteristic of machines is that their performance can be definitely predicted. They are designed and constructed to do certain jobs, at certain rates, and when reasonably handled their output can be determined in advance and this is one reason why use of machines makes possible lower production costs and reduced prices.

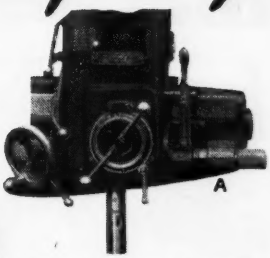
From the standpoint of the workman, the larger output makes possible higher wages and economists have repeatedly pointed out that **real** wages, which are measured by what one hour of labor will obtain in commodities, are invariably increased by increasing output. American industrial **history** shows that increased output has invariably lowered the costs of goods and raised the individual pay of the worker. Referring again to the automobile industry, in 1914 a factory worker paid the equivalent of 4,514 hours of work for his automobile; in 1938 the same worker could have a better automobile for only 1,098 hours. The car price, figured in man hours, had dropped 75 per cent.

The use of machinery, by cutting costs and at the same time enabling larger production at higher wages, benefits the worker and everybody else; but particularly the worker is benefited, because by specializing and by letting tools perform the onerous back-breaking tasks his pay can become higher, much higher, because his real wages (measured in output) have increased.

Mechanization to implement mass production can solve the problem of increasing production which is the only real answer to the question "what shall we do about inflation." The American system has given us the highest standard of living in the world today; it overcame the Axis in the late war

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2430	2080	1560	1040	695	2430	2080	1560	1040	695
905	775	580	385	260	1750	1500	1125	750	500
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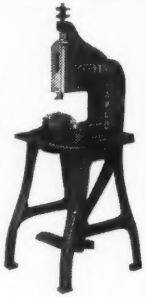
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Newest of the Famco family, these power operated, open-back, inclinable punch presses are available in bench or floor models. Have semi-steel cast iron frames; solid, forged, precision-ground crank-shafts. With or without motor.

SQUARING SHEARS



Famco foot-operated shears do precision shearing of up to 18 gauge mild steel. Come in 5 cutting widths (22" to 52") . . . have easy-to-set gauges.

Famco Machines save in first cost, operating cost and maintenance cost. Write today for full details about the complete line . . . there is no obligation.

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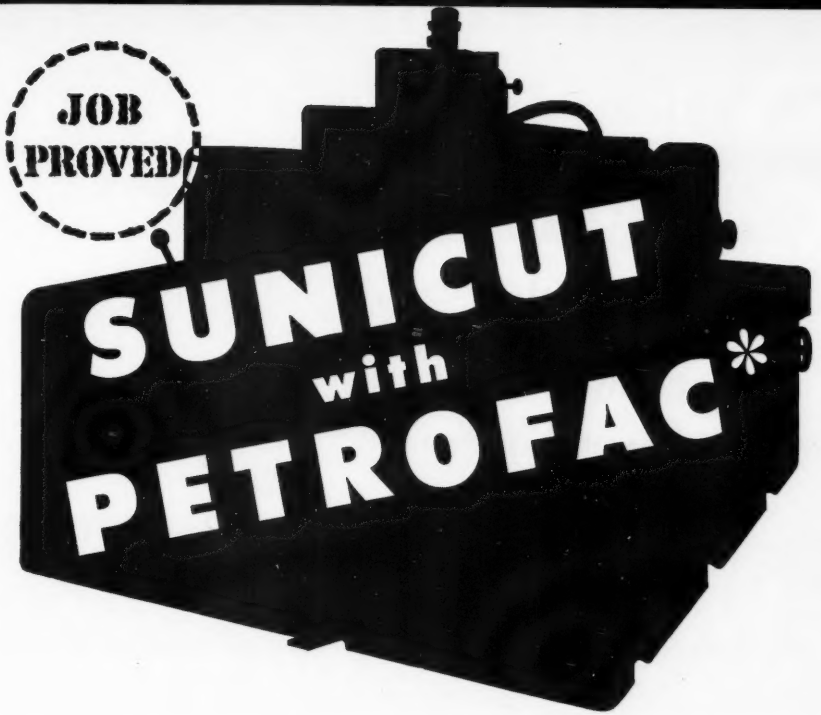
1324 RACINE STREET • RACINE, WISCONSIN

with an avalanche of war goods that overwhelmed the enemy. The American system can maintain the peace too, by lowering costs, raising wages and providing adequate supplies of needed commodities.

Goddard & Goddard Milling Cutters. The Goddard & Goddard Co., P. O. Box 68, Brightmoor Station, Detroit 23, Mich., has published an attractively cloth-bound board-covered 280-page milling cutter catalog which is designed to facilitate easy references, assist in the selection of proper cutters, and increase efficiency in performing milling operations. The catalog is conveniently thumb-indexed and contains illustrated, descriptive, and complete tabular data, including list prices, on standard solid high speed steel milling cutters; standard and special inserted blade cutters and high speed steel blades; standard and special carbide-tipped cutters, including end mills, face mills, shell end mills, straddle mills, inserted blade type special tools, and solid body type special tools; standard and special reamers and boring tools; multiple thread cutters; standard and special railroad cutters and reamers; and special, profile, and form solid high speed steel milling cutters. A section containing maintenance and engineering data on milling cutters is also contained in the catalog.

Mechanical executives desiring copies of Catalog "E" should address their requests on company letterheads.

"What Makes a Plant Fire-Safe?" is the title of a 16-page illustrated booklet published by the Associated Factory Mutual Fire Insurance Companies, Inspection Dept., 184 High St., Boston 10, Mass. The booklet outlines essential points for management to bear in mind in planning or supervising plant fire-safety. Each page deals with a separate feature of the overall problem. The broad principles governing construction standards, automatic sprinklers, water supplies, and extinguishers are covered, as well as the essential requirements of a good watch service and fire-fighting organization. Included is a breakdown of industrial fire causes and suggestions for their elimination. Good housekeeping, the maintenance of fire equipment and electrical apparatus, and safeguards for special hazards are also covered. Copy free.



Faster Cutting, Longer Tool-Life, Reported for the New Sun Cutting Fluids Containing No Animal or Vegetable Fatty Oils

Since Sun recently announced the new grades of Sunicut with Petrofac, favorable performance reports have been coming in on practically every kind of metal-cutting job.

Higher cutting speeds, longer tool-life, increased production, better finish, performance superior to that of cutting oils previously used . . . these are the "Job Proved" results being reported.

"10% increase in tool-life on our automatics" . . . "chaser-life increased 50% on pipe-threading machines" . . . "finer finishes" . . . "best cutting oil I have ever used" . . . say typical reports from customers.

No animal or vegetable fatty oils go into the new Sunicut grades. The Petrofac used in compounding is entirely derived from petroleum. The new Sunicut Cutting Oils with Petrofac possess superior metal-wetting and anti-welding properties, as well as unusual extreme-pressure characteristics.

Sunicut with Petrofac will not turn rancid. It is available in plentiful supplies and at reasonable, stable prices. Call in your Sun Cutting Oil Engineer for full information, or write Department MM-3.

SUN OIL COMPANY

Philadelphia 3, Pa.

"Makers of the well-known Sunoco Emulsifying Cutting Oil"

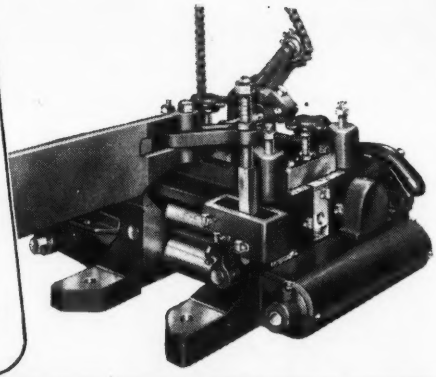
In Canada: Sun Oil Company, Ltd.—Toronto and Montreal

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*Petrofac is a trade-mark of Sun Oil Company

Assures Fast
Safe-Accurate
Feeding of
Coiled Strip Stock

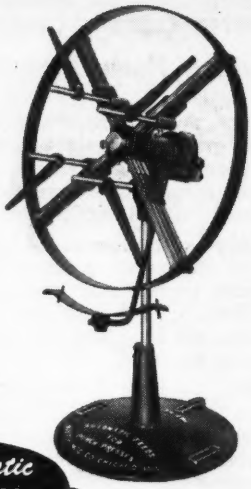


WITTEK *Automatic*
ROLL FEEDS AND REEL STANDS

For All Types of Punch Presses

Wittek *Automatic* Roll Feeds provide maximum efficiency in the high speed automatic feeding of all types of coiled strip stock to punch presses. Highly flexible in function and application, they are capable of feeding lengths up to 24" per stroke of the press and will handle various stock thicknesses in widths up to the maximum width of the rollers.

Wittek *Adjustable* Reel Stands provide automatically expanding coil holders that center the coil and assure maximum production by eliminating looping, tangling and back lash of stock. If your production problem involves feeding coiled stock to punch presses, consult us. Your inquiry will be given immediate attention. Ask for completely descriptive catalog.



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4305 W. 24th Place, Chicago 23, Illinois

Automatic
ROLL FEEDS
and
REEL STANDS

Here's a TOOL KIT that will save you a lot of TIME and MONEY



With this *MINUTE MAN* kit you can cut keyways *IN ONE MINUTE*

in *GEARS*
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etc., etc.



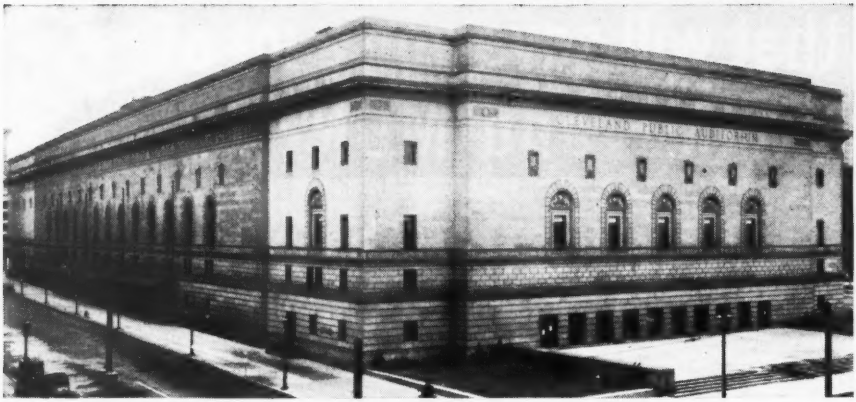
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Kit contains everything you need to cut complete range of keyway sizes—precision hand broaches, slotted bushings, shims, keyway stock. Used with du Mont or other Arbor Press. Cut a few keyways and you've paid for the Kit.

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Cleveland Public Auditorium

American Society of Tool Engineers Convention and Industrial Exposition

THE Sixteenth Annual Convention of the American Society of Tool Engineers, in conjunction with the Sixth Industrial Exposition, will be held at Cleveland, Ohio, March 15 to 19, 1948. Visitors to this Convention and Exposition will find that members of the American Society of Tool Engineers are making a doubly significant contribution to American industry.

Coming at a time when industry is doing its utmost to improve its productive facilities to provide the high-level flow of goods which seems the only solution to vital economic problems at home and abroad, the Exposition will offer tool engineers and others responsible for production an unusual opportunity to review and preview the latest techniques destined to increase both production and employment.

Assembled in Cleveland's Public Auditorium will be a tremendous array of the newest and most efficient tools and machines as well as educational

presentations of the latest processes, methods and techniques for cutting costs and improving quality in every field of metal working. The country's leading manufacturers will be represented.

This huge Industrial Exposition might be considered as an educational laboratory. Here visiting engineers, technicians and industrialists will have an opportunity to see the latest in tools and processes at close range. They will observe them in actual operation and discuss their merits and advantages with the builders.

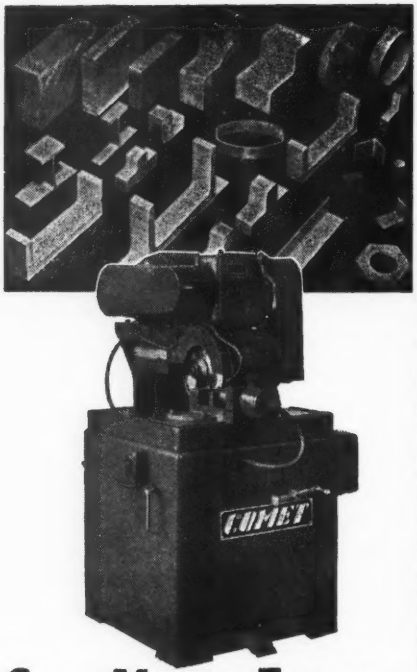
As members of the sponsoring organization, tool engineers have made possible this Exposition. As vistors to the well-organized Exposition, tool engineers can learn ways and means of doing their jobs better and of producing goods faster and at lower costs. They will thus enhance the value of their skills and talents in the race to bring our industrial production up to its highest level.

Trade shows or industrial fairs are generally recognized as the oldest, and certainly one of the most efficient means of merchandising. Expositions had their start in ancient days when on certain pre-arranged dates, which assumed the importance of national holidays, people would travel for miles to gather in a town or village square. There each family or group or tribe carefully arranged its goods and commodities to make these wares as attractive as possible to buyers, which were usually producers of other types of merchandise with whom they might make mutually profitable exchanges. The next step was the weekly market, with its bazaars, stalls, and booths. The trade show of today is a logical development of these historic, pre-arranged meetings of buyers and sellers.

Word-of-mouth education has always been the most effective way of creating lasting impressions, chiefly because personal conviction can always be best conveyed through conversation and personal contact. Added to this is visual appeal and actual demonstration of products on a comparative basis, which makes the trade show the best setting possible for carrying out such advertising and merchandising on a large scale.

In addition to knowledge which will be gained from viewing the Exposition, the visitor will have the opportunity to hear outstanding experts in the various branches of his specialized field of engineering. These authorities will appear on the technical seminars which are featured on the program of the ASTE Sixteenth Annual Meeting, held concurrently. A third educational advantage will be gained by visiting various industrial plants in the Cleveland area. These plants have been especially selected because of innovations in techniques which have been recently established. Tool engineers and visitors will want to see at first hand how these operations are conducted.

All of this is directed toward rounding out a program which will materially assist industry in its tremendous task of increasing production. The number one job of this increase is to combat inflation. Number two is to



CUTS METAL FASTER
More Accurately

If you require accurate, high-speed cutting of non-ferrous metals and other materials, here is your machine. Cuts by smooth, fast, milling action. Pneumatic hydraulic feed is coordinated with speed of cutting blade. Vise synchronized with action of ram. No vibration because of weight distribution. Has 4 speed transmission and variable feed mechanism. Built-in coolant system. Properly operated, blade breakage is eliminated. Write or wire for free literature.

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COMET
AUTOMATIC CUT-OFF MACHINE
MODEL MH

provide the goods necessary under the Marshall Plan. Number three, and closely related to the first two, is to curtail the spread of foreign political and economic ideologies in this country and among democratic peoples everywhere.

Tool engineers are key men in the modern production setup. It is, therefore, the aim of the Society in this combined Exposition-Convention to acquaint them and other industrial leaders with new developments which will help them do the job that recent economic changes dictate. It is a known fact that an alarming number of machines and methods which figured so importantly in our wartime productivity are now obsolete. This Exposition will offer the first opportunity for tool engineers and other production men to see these postwar developments and to determine how they may be profitably applied to their operations.

It is a generally accepted fact that one of the tool engineer's most important duties is that of selecting and specifying the tools and machines which increase production, raise quality standards, and lower costs. The knowledge he can gain by attending the ASTE Exposition will enable him to perform this task better and more efficiently.

Every tool engineer owes it to himself, his company and the society in which he lives to attend the Exposition and the technical meeting. It is a part of his responsibility in America's fight to increase production and thereby help achieve world-wide economic stability.



THIS SHOWS IT BETTER THAN WE CAN TELL IT . . .

THIS IS one of those "high" jobs with the arm as high as it will go. But note that all control levers on the head are still within easy reach of the operator.

The value of the "American" Hole Wizard's concentrated control at the bottom of the head is clearly demonstrated by this job.

Note, also, how easy it is for the operator to make the speed changes for the different tools. Not only are the speed change levers within easy reach, but the speed change mechanism is direct reading so the operator can see how to get the speed he wants and get it quickly without fear of mistake.

Operators like "American" Hole Wizard Radials. Ask the man who runs one—see what he says. An operator gets more work from a machine he likes.

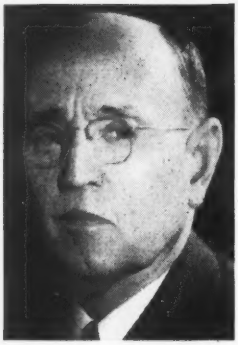
Descriptive Bulletin No. 327 tells the whole story. Want one?

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NATIONAL OFFICERS
AMERICAN SOCIETY
OF
TOOL ENGINEERS



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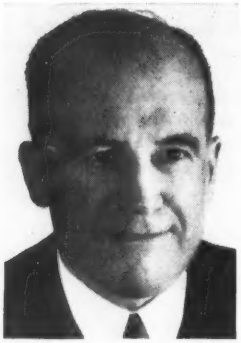
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Kempsmith Standard Attachments broaden the scope of your milling machines. Backed by more than a half century of specialized experience building milling machines exclusively, these precision-built attachments result in (1) lower capital investment in machinery (2) saving in set-up time and (3) greater job versatility. Write today for literature.

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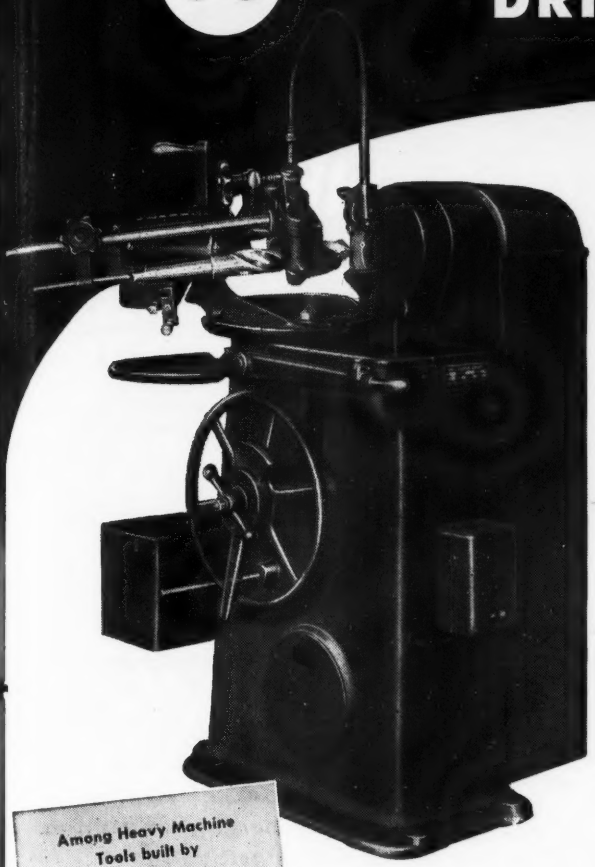
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QUICKLY PAYS FOR ITSELF IN DRILL MAINTENANCE SAVINGS

- **INCREASED PRODUCTION**
  Free cutting accurate drills permit drilling machines to be operated at their most efficient speeds.
- **LONGER DRILL LIFE**
  Less drill material is ground off when re-sharpening drills.
- **MORE HOLES PER GRIND**
  Correctly ground—drills remain sharp for a greater number of holes.
- **REDUCED ASSEMBLY COSTS**
  Eliminates under- and over-size holes. Saves reaming and boring.
- **RECLAIMS DAMAGED DRILLS**
  Sellers grinding method reclaims many burned and broken drills that are ordinarily scrapped.
- **ECONOMICAL**
  This Sellers Grinder has been known to have earned its original cost as many as six t[illegible] over [illegible] in a single year.

Among Heavy Machine Tools built by Consolidated are . . . .

LATHES
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The Sellers 6-G Drill Grinder provides an improved method of grinding that produces correctly formed drill points and duplicate lips. It automatically determines proper clearance according to drill size and grinds drills to equal length for use with multiple spindle drilling machines. This method materially reduces drill maintenance costs. A wet grinder that is especially adapted to grinding high speed twist drills from ¼" to 3" diameter.

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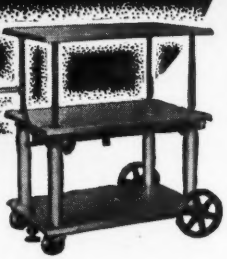
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Style "A" Portelvator
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Capacity 2,000 Pounds

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Hamilton Portable Elevating Table

AND *CUT PRODUCTION COSTS*

Stop idle machine time! When weight must be moved, send *one* man, and Portelvator.

Raises, lowers, transports, levels and supports overhanging work. Forms a work bench when and where you need it. May be worked at from all sides. One man can safely lift and carry loads usually requiring the combined strength of flour.

Three table surfaces. Four point support. Fast lift and slow lift mechanism. Self locking at any height. *Will not tip or slip.* Positive floor lock.

Standard model capacities 1,000 to 5,000 pounds. Special models designed and built on order. Write for Bulletin P-47.



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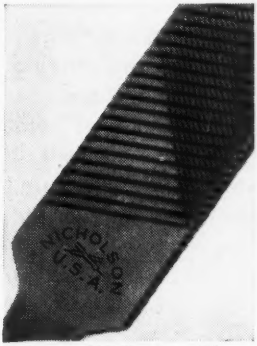
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"KNOW YOUR FILES AND CUT COSTS"

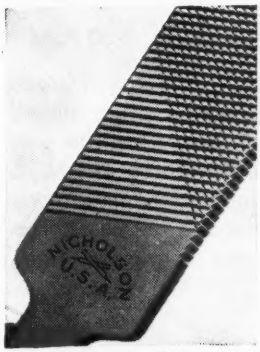
• It's the cost of the workman's time that counts in filing operations. Save these advertisements.

Subject: FILES FOR ALUMINUM

Prepared by Nicholson File Co.



"Type A" Aluminum File



Flat Bastard File



Filing Aluminum

WHY ALUMINUM REQUIRES A SPECIAL FILE. Aluminum is a soft, ductile, malleable metal and any cutting tool used on it has a tendency to build up chips before it. This is likely to dull the tool. The difficulty in filing soft aluminum with a regular purpose file is that the teeth are soon clogged unless very light pressure is used.

CONSTRUCTION OF ALUMINUM FILE. After much study and practical testing, Nicholson has produced the "Type A" Aluminum File which is specially designed for filing aluminum and aluminum alloy castings. This file has a fine overcut and a deep upcut. The fine overcut produces on the upcut a succession of small scallops which break up the filings and enable the file to clear itself of chips. The open-throat construction also tends to prevent clogging of the file. The light overcut reduces "chatter" by preventing the teeth taking too large bites.

USE OF ALUMINUM FILE. Nicholson and Black Diamond "Type A" Aluminum Files are designed to cut aluminum rapidly and without clogging, but to leave a somewhat better finish than the coarser special files for aluminum. They should be used on work where quick removal of stock is more important than finish; however, by filing with a shearing action toward the left a good finish can easily be made.

Write for "File Filosophy"—free 48-page book on files

NICHOLSON U.S.A.

NICHOLSON FILE COMPANY
48 Acorn St., Providence 1, R. I.
(In Canada, Port Hope, Ont.)

BLACK DIAMOND TRADE MARK

NICHOLSON FILES *FOR EVERY PURPOSE*

ASTE Technical Seminars

THREE Technical Sessions to be held coincident to the Sixteenth Annual Meeting of the American Society of Tool Engineers, March 15 to 19, in the Hotel Cleveland Ballroom, Cleveland, Ohio, will be devoted to subjects designed to aid in increasing production.

MONDAY, MARCH 15, 8:00 P. M.

Allan H. Mogensen, Industrial Consultant and director of the Lake Placid Work Simplification Conference, will deliver a paper on "Work Handling Simplification" on Monday, March 15. The session will be chairmaned by G. A. Rogers of Rudel Machinery Co., Ltd., Montreal, Quebec, Canada.



ALLAN H. MOGENSEN

The National Program Committee of ASTE is of the opinion that an increase in the efficiency of work handling is today one of the most urgent needs of all phases of manufacturing. Bottlenecks and slow-downs are constantly developing as a result of inefficient procedures and equipment in this field as well as in outmoded methods that are still used in many industries.

This program has been scheduled and designed to present the latest and most approved developments, in simplifying work handling.

TUESDAY, MARCH 16, 8:00 P. M.

"Dies—Control of Deep Draws and Irregular Shapes" will be the subject of the technical session on the program for Tuesday, March 16. N. E. Rothenthaler, Superintendent of production and planning, Steel Operations, Ford Motor Company, Dearborn, Michigan, will be the principal speaker.

The ASTE Program Committee points out that recent developments in the field of deep drawing of metals have increased production, cut costs and made for greater efficiency in many industries using metal stampings. It is thought that a wider use of newly developed techniques will help other manufacturers to meet increasing production schedules. Rothenthaler is among the best authorities on sheet metal working to be found in industry.

His presentation will be both practical and theoretical.

Chairman of this seminar will be Arthur D. Lewis, President of Art Lewis Production Equipment Company, Glendale, California. Lewis is



N. E. ROTHENTHALER

former Chairman of the Los Angeles ASTE Chapter and is presently a member of the ASTE National Program Committee.

WEDNESDAY, MARCH 17, 8:00 P.M.

For the Wednesday, March 17, technical seminar the ASTE has come up with an entirely new idea, A "quiz program" labeled "The Tool Engineers' Quiz" will be held under the chairmanship of Robert W. Ford of Pittsburgh. Ford is an engineer representing the Ex-Cell-O Corporation and is Chairman of the ASTE National Program Committee.

The National Program Committee will select 25 questions from those sent in by the Society's more than 18,000 members to be answered by a panel

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No other press does so many jobs so well!

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ASSEMBLING — Laminations and rivets squeezed at one stroke. Steady controlled pressure prevents distortion.

CRIMPING—4 crimps made at one stroke with no damage to plastic base in assembly of radio tube.

ASSEMBLING — Worm pressed over knurled spindle on venetian blind hardware.

BROACHING — 8 slots broached at one stroke on plastic base. Broaching, slotting and piercing operations on plastics performed easily on A-H Press.

RIVETING — 3 tubular rivets in ceramic base "squeezed with speed" at one stroke. Eliminates danger of damage to ceramic.

FORMING — Field coil squeezed into concave shape from flat. Only a squeeze assures perfect, uniform work, free of tape breakage.

STAKING — Multiple staking operation on metal and bakelite radio volume control.

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of experts at this session. Those contributing the questions used will be awarded a copy of the Tool Engineers' Handbook when it is published, which will be early this year, and a personal certificate of appreciation.

When the 25 pre-selected questions are answered and discussions held on their implications and ramifications, questions may be asked from the floor.

The questions will be chosen in the light of their pertinence to current production problems.

Chairman Ford announced that the panel of experts would include N. E. Rothenthaler, Superintendent of planning and production, Steel Operations, Ford Motor Company, Dearborn, Michigan; Emil Gairing, President, Gairing Tool Company, Detroit, Michigan; Allan H. Mogensen, Industrial Consultant and Director of the Lake Placid Work Simplification Conference, New York City, New York; E. W. Miller, Vice President and General Manager, The Fellows Gear Shaper Company, Springfield, Vermont; and A. H. d'Arcambal, Vice President and Consulting Metallurgist, Pratt & Whitney Division, Niles-Bement-Pond Company, West Hartford, Connecticut; William H. Oldacre, President, D. A. Stuart Oil Company, Chicago, Illinois; and James K. Fulks, Vice President in charge of manufacturing, Ex-Cell-O Corporation, Detroit, Michigan. Pictures of the panel of experts who will participate in the Quiz are shown on the following editorial page.

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Put Your Small, Difficult Work ON A PRODUCTION BASIS!

- **Burke Milling Machines are fast, economical and indispensable in shops handling small, difficult work.**
- **4 Types TO MEET YOUR REQUIREMENTS—Nos. 1, 2, 3, and 4.**
- **Motor Driven for Fast, Economical Production.**
- **Timken Roller or Ball Bearings to Spindle.**
- **A Number of Attachments Available: Vertical Milling Attachment; Index Centers; Vises—3 types, including swivel base.**



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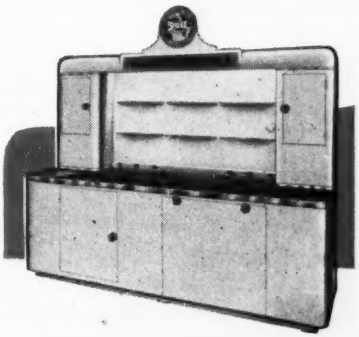
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No. 1795

Here's the economical method of providing adequate and compact space for your precision valve service equipment. A real Work Bench. Everything handy—saves time and increases efficiency. Durably constructed of sheet steel with white enamel finish.

Has built-in disappearing rack for holding cylinder heads. Racks for holding valves in sequence. Space for Sioux Units (not included) such as Valve Grinding Machine; Seat Grinder set; Serva-Tool-Dor Panel; Valve Cleaner; Vacuum Dressing Unit, also cabinet space for wrenches and other valve service equipment. Length 8 ft.; Height 6 ft.; Depth 28 in.; Bench height 33 in. Get details from your SIOUX Distributor.



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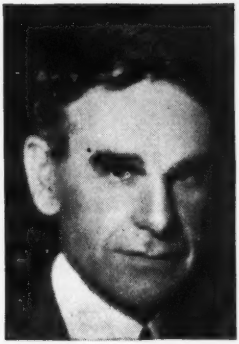
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ASTE Plant Tours

THE plant tours to be sponsored in connection with the ASTE Sixteenth Annual Meeting and the Tool Engineers' Industrial Exposition are, like the technical seminars, designed to help in increasing production.

The National Program Committee states that the plants selected for visitation have been placed on the schedule because they represent the manufacturing and research establishments in the Cleveland area in which innovations in processes and methods have occurred recently.

Robert W. Ford, Program Chairman, pointed out also that in nearly every instance these plants offered ideas which would find practical application in the industries represented by the visiting tool engineers and industrialists.

Visitors will register for plant tours and receive tickets. Transportation for the scheduled tours will be furnished free to registrants. There will be several tours scheduled for the same times and, therefore, visitors will have to select the plants in which they have most interest.

The timetable for plant tours is as follows:

MONDAY, MARCH 15, 1:00 P. M.

The Warner & Swasey Company
The Ohio Crankshaft Company
The White Motor Company
Fisher Body Division, General Motors Corporation

TUESDAY, MARCH 16, 9:00 A. M.

The National Acme Company
The White Motor Company
General Electric Company (Nela Park)
The Weatherhead Company
The Reliance Electric & Engineering Company

TUESDAY, MARCH 16, 1:00 P. M.

The Warner & Swasey Company
The Ohio Crankshaft Company
Fisher Body Division, General Motors Corporation
Republic Steel Corporation (Strip Mill)

WEDNESDAY, MARCH 17, 9:00 A. M.

The National Acme Company
General Electric Company (Nela Park)
The Weatherhead Company

WEDNESDAY, MARCH 17, 1:00 P. M.

The Warner & Swasey Company
The Ohio Crankshaft Company
The White Motor Company
Fisher Body Division, General Motors Corporation
Jack and Heintz, Precision Industries, Inc.

THURSDAY, MARCH 18, 9:00 A. M.

The National Acme Company
The White Motor Company
General Electric Company (Nela Park)
The Weatherhead Company
The Reliance Electric & Engineering Company
Jack and Heintz, Precision Industries, Inc.'

THURSDAY, MARCH 18, 1:00 P. M.

The Warner & Swasey Company
The Ohio Crankshaft Company
Fisher Body Division, General Motors Corporation
The National Advisory Committee for Aeronautics Laboratories, Cleveland Airport

FRIDAY, MARCH 19, 9:00 A. M.

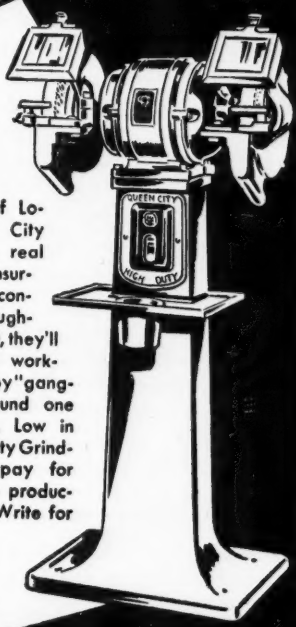
General Electric Company (Nela Park)
The Weatherhead Company

Latrobe High Speed, Tool, and Die Steels. Containing many unusual features for practical shop use, a pocket catalog of working data on high speed steels and tool and die steels has been published by the Latrobe Electric Steel Co., Latrobe, Pa. The 80-page catalog contains condensed descriptions and heat treatment and application data on all of the most widely used Latrobe products. Classifications include high speed, non-deforming, oil hardening, hot work, shock and chisel, die casting, water hardening, and carbon steels. Shop information presented covers numerous weight, conversion, and related tables, each marked by a tab to enable location at a thumb flip.

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ASTE Annual Banquet

JAMES D. MOONEY, President and Chairman of the Board of Willys-Overland Motors, will be the guest speaker at the ASTE Annual Banquet to be held in the ballroom of the Hotel Carter, Cleveland, Thursday, March 18. This meeting will be the National Annual Membership Meeting of the Society and will be the highlight of the Tool Engineers' Convention and Industrial Exposition.

The ASTE Annual Banquet serves as the Annual Membership Meeting of the Society. The attendance will exceed 1,000, including members of the technical organization and invited guests. Guests will include outstanding industrialists from all parts of the United States and Canada, representatives and delegations from many foreign countries, and officials of the City of Cleveland.



James D. Mooney

The National Program Committee combed many lists of prominent industrialists and engineering leaders for just the right person to give America's tool engineers not only an inspirational message to stimulate greater production, but some down-to-earth ideas on how the job before them can be accomplished.

James D. Mooney was born in Cleveland, Ohio, in 1884. He received his B.S. degree in Mining and Metallurgy from the Case School of Applied Science, Cleveland, and later took his post graduate M.E. (mechanical engineering) from Case.

After World War I, during which he served in the Army as a Captain in France with the 159th Field Artillery, he was made President and General Manager of the Remy Electric Company, and in 1921 General Motors named him General Manager of its export company. A year later Mr. Mooney became Vice President in charge of overseas operations and President of General Motors export division, following which he was appointed a director of the Corporation.

During Mr. Mooney's service with General Motors export, he established the overseas operation of General Motors which consisted of several manufacturing plants and about 25 semi-manufacturing and assembly plants spread all over the world.

In 1940 Mr. Mooney was relieved of his repsonsibility for the overseas operations of General Motors and made Chairman of a small group of the directors of General Motors who

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were given special authority by the General Motors Board to proceed with the problem of converting the General Motors domestic plants from the manufacture of passenger cars into the manufacture of airplanes, tanks, guns, and ammunition.

A Lieutenant Commander in the Naval Reserve since 1937, Mr. Mooney in 1941 was made head of the Production Engineering Section of the United States Navy, Bureau of Aeronautics. He later served in the Advanced Base Division and was promoted to Captain in service with the 11th Amphibious Force in England, and finally to the staff of the Chief of Naval Operations.

He returned to General Motors in March, 1945, and resumed his duties as Vice-President and group executive in charge of overseas operations. He also served as a member of the administration committee and a member of the Board of Directors. Early in January, 1946, he resigned from General Motors to accept the Willys-Overland Chairmanship and Presidency.

Barnesdrill Magnetic-Automatic Coolant Separators for honing and grinding machines are fully illustrated and described in a 12-page three-color bulletin published by the Barnes Drill Co., 814 Chestnut St., Rockford, Ill. Various sizes of the separators are individually illustrated and discussed. In addition, illustrated data are presented on the operation of the separators under actual conditions on grinding and honing machines. Copy of Bulletin 151-F free upon request.

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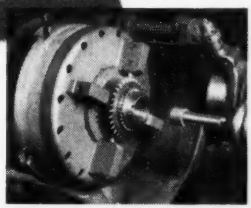
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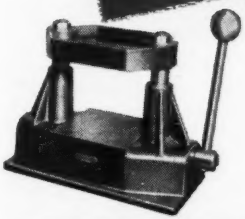
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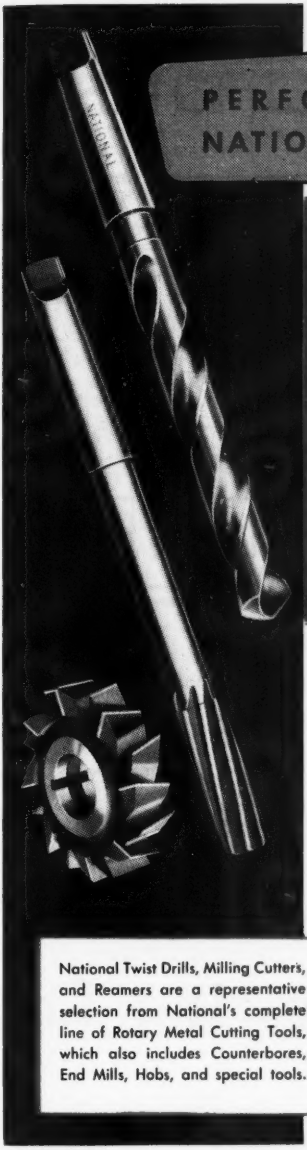


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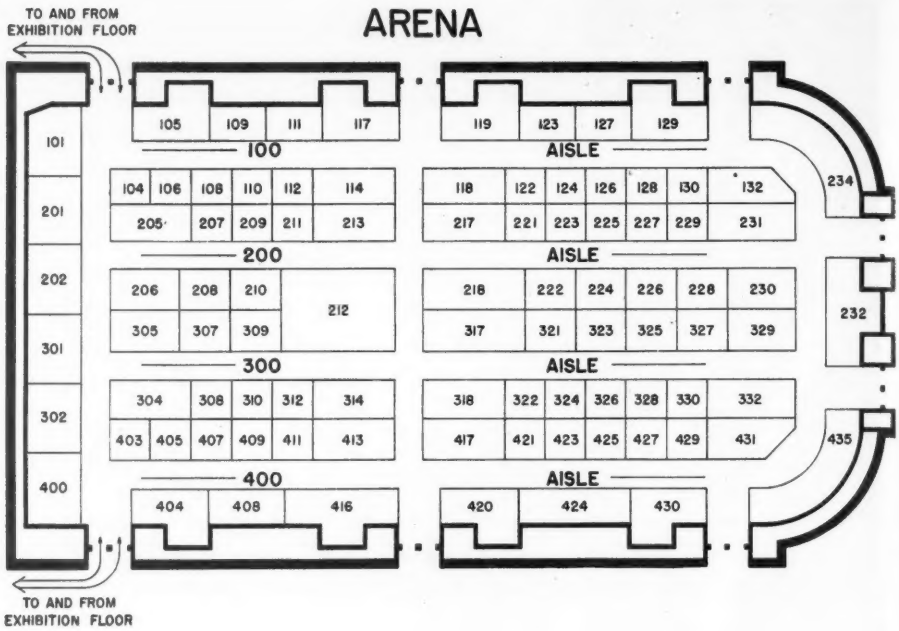
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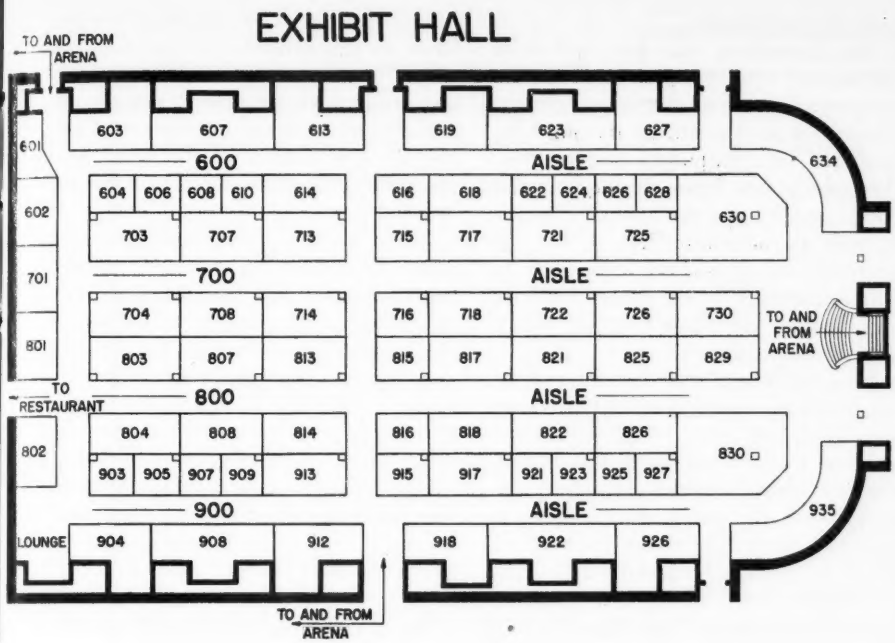
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Above is the floor plan of the Arena, which is the main floor of the Auditorium. Visitors enter the Arena directly from the Registration Section.

Cleveland Pub li
Floor P
Showing Loca ti

The Cleveland Public Auditorium, in which the ASTE Industrial Exposition will be held, is divided into five sections, as follows: The Arena, the Exhibition Hall, North Exhibit Hall, Arcade, Lakeside Exhibit Hall. The Arena, with which the stage is included, is on the street level. The other four halls are on the lower level, reached by the stairs from the Arena. The entrance is from Lakeside Avenue, and leads through the foyer into the Arena. Just



Above is the floor plan of the Exhibit Hall, which is located below the Arena shown on page opposite.

lic Auditorium Plans

tion of Exhibits

inside the hall is a huge stairway leading to the lower level. Underneath the Arena is the section known as the Exhibition Hall, while in the opposite direction is the North Exhibit Hall, the Arcade, and Lakeside Exhibit Hall.

Altogether, five and one-half acres will be devoted to this display of modern machine tools and accessories. The more than 250 exhibitors will have on exhibition an unparalled display of the newest and finest in metal-working

tools and equipment.

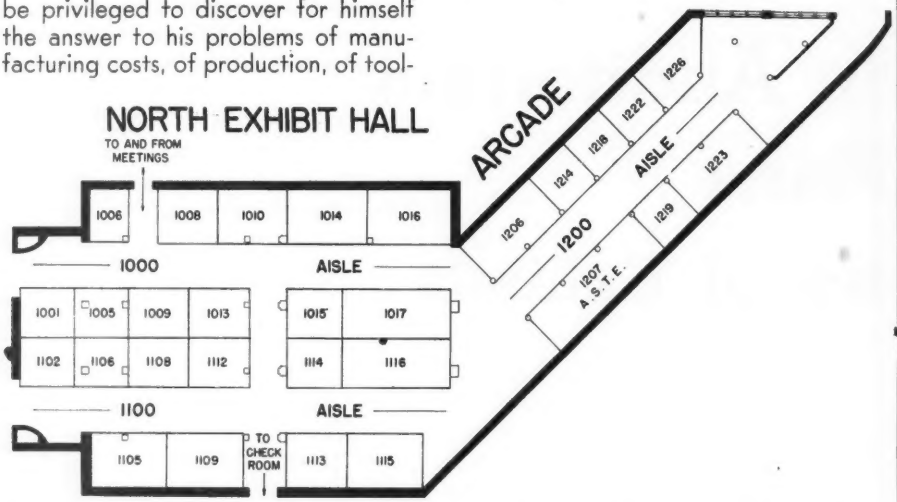
The Exposition this year will mark the second time that the American Society of Tool Engineers has chosen Cleveland as the site of its giant Exposition. Tool Engineers and production executives from throughout the nation and many provinces of Canada as well as representatives of foreign countries will attend this Exposition to gain knowledge of the latest methods and devices developed to aid industrial production.

It is expected that this Exposition will surpass, both in attendance and number of exhibitors, the New Era Exposition which drew more than 50,000 visitors. New devices, including developments in tools and processes brought forth since the peacetime drive for production started, will be on display. Some of these innovations have recently been introduced to this country from Europe.

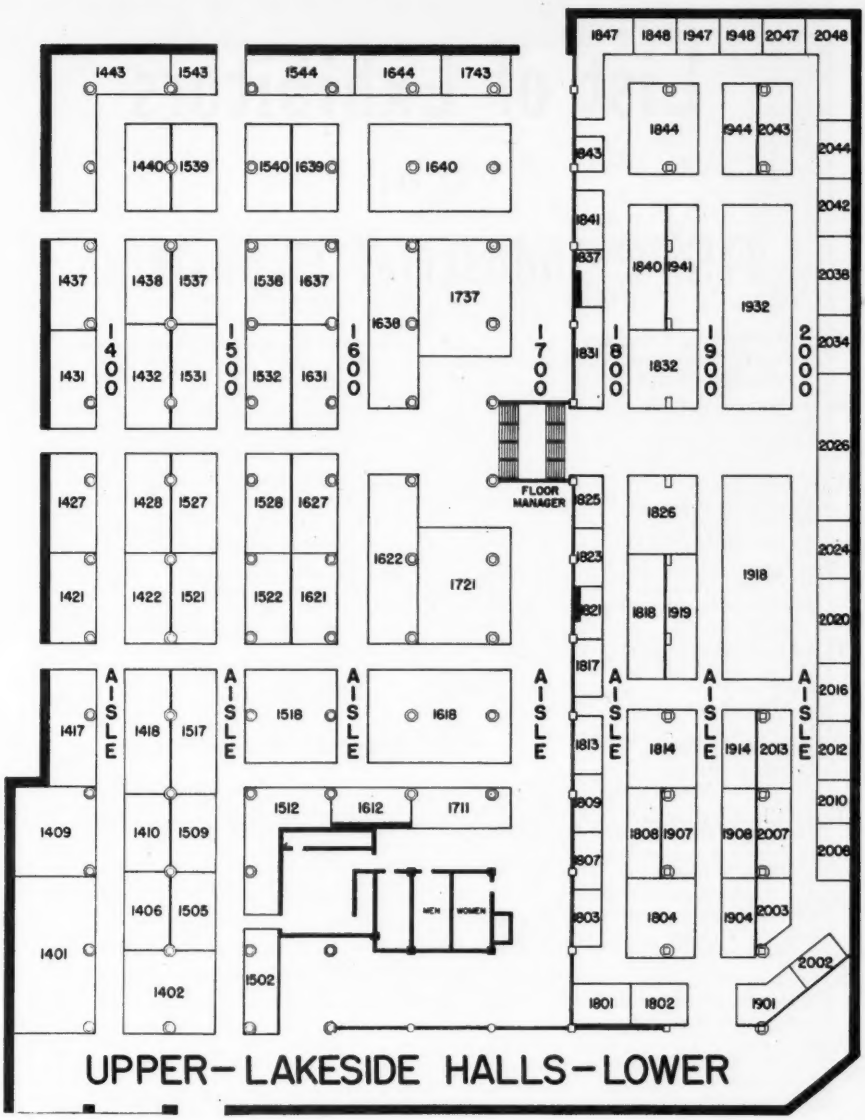
With most of the machines under power, the visitor to the Exposition will be privileged to discover for himself the answer to his problems of manufacturing costs, of production, of tooling, of design, or of accuracy. He will have an opportunity to see the machines in which he is most interested at work and will be able to make comparisons as to the convenience of operation, the quality of the work, and the efficiency of the various methods or machines.

Here metal-working equipment of every type produced by the country's best engineers will be seen in actual operation, with experts available to put the machines through their paces and answer any questions that may arise in the mind of the visitor. Here also will be found the most recent developments in the application of electricity, hydraulics, and pneumatics to the operation of machines and tools, the newest in cutters, gages, inspection tools and instruments, and machine accessories.

No progressive mechanical engineer or metal manufacturing executive can afford to miss the Sixth ASTE Industrial Exposition.



The Arcade extends from the Exhibit Hall to the Upper and Lower Lakeside Halls, both of which are below the street.



Booths numbered from 101 to 435 will be found in the Arena; those numbered from 601 to 935 are located in the Exhibit Hall; numbers from 1001 to 1115 are located in North Exhibit Hall; numbers 1206 to 1226 are located in the Arcade, and booths numbered from 1401 to 2048 are located in the Upper and Lower Exhibit Halls.

List of Exhibitors

at the

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Accurate Bushing Company
Garwood, New Jersey
Booth No. 405

Acme Steel Company
2840 Archer Avenue
Chicago 8, Illinois
Booth No. 2034

Aget-Detroit Company
First National Building
Ann Arbor, Michigan
Booth No. 1404

Allegheny Ludlum Steel Corporation
2332 Oliver Building
Pittsburgh 22, Pennsylvania
Booth No. 304

The Allen Manufacturing Company
Drawer 570,
Hartford 1, Connecticut
Booth No. 312

Allied Products Corporation
4646 Lawton Avenue
Detroit 8, Michigan
Booth No. 1015

The Allison Company
257 Island Brook Avenue
Bridgeport 8, Connecticut
Booth No. 1432

Alpha Tool Works
9281 Freeland
Detroit, Michigan
Booth No. 1841

B. C. Ames Company
Waltham, Massachusetts
Booth No. 308

Ampco Metal, Incorporated
1745 S. Thirty-Eighth Street
Milwaukee 4, Wisconsin
Booth No. 234

Anderson & Sons Incorporated
Westfield, Massachusetts
Booth No. 221 and 223

F. E. Anderson Oil Company
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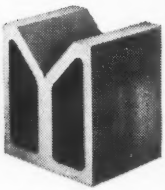
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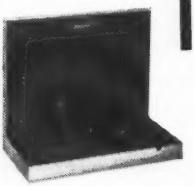
2 RICHMOND SQUARE, PROVIDENCE 1, R. I.

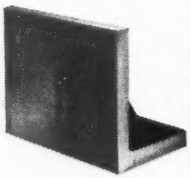
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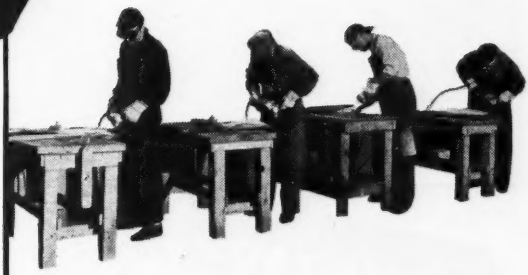
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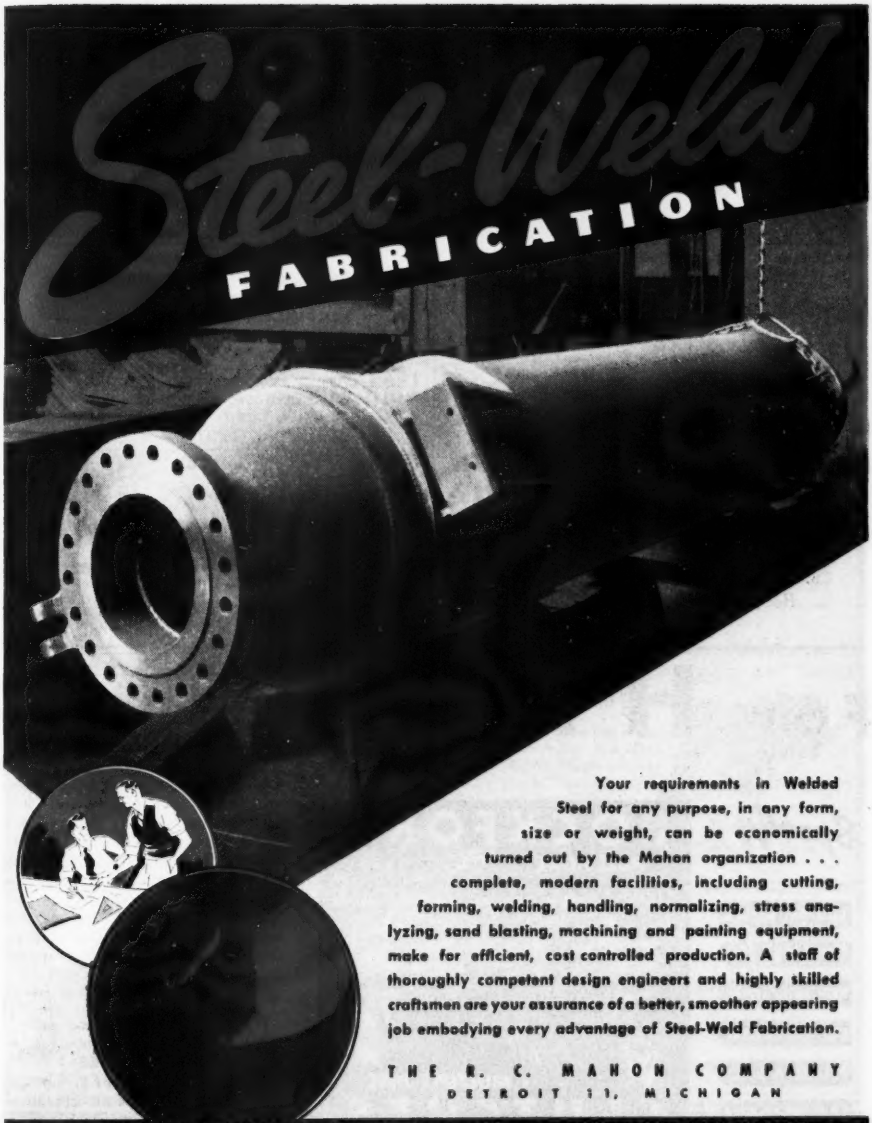
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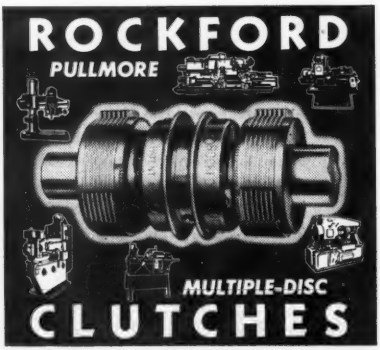
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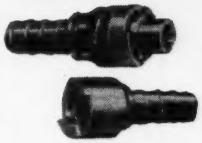
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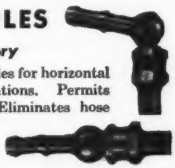


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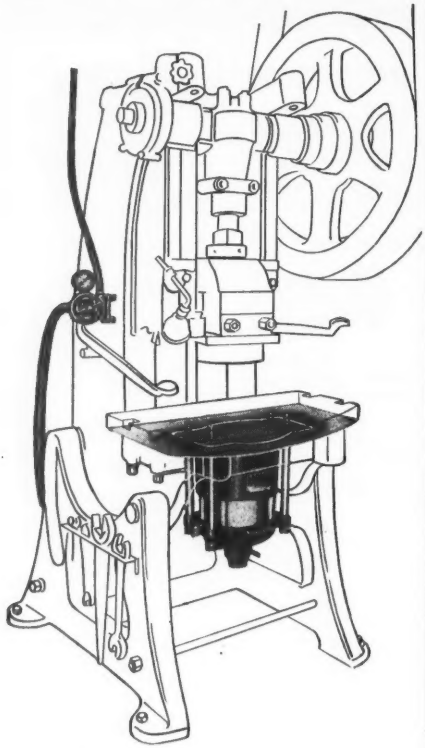
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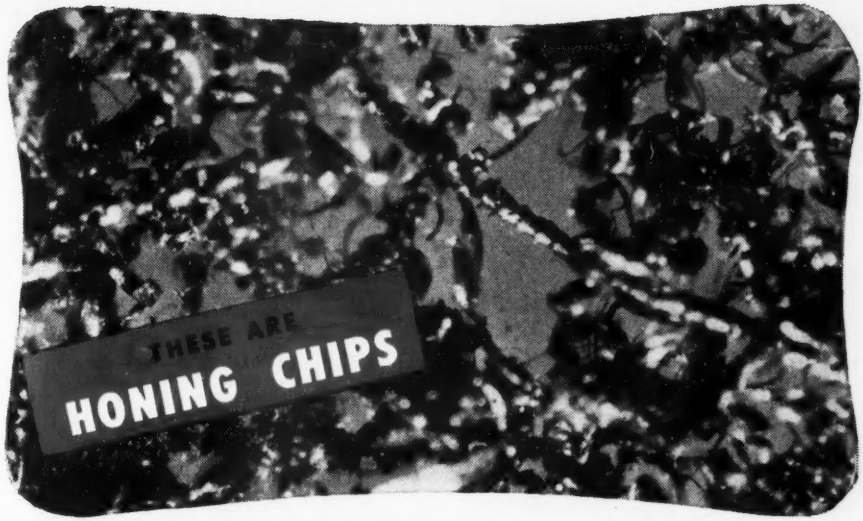
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Check these typical production examples of fast stock removal by Fulmer Honing Machines

PIECE	LENGTH	DIAMETER	STOCK REMOVED	TIME
Hardened Pump Liner	27"	7.250" +.0005"	.015"—.018"	10 min.
Forged Gear Blank	Two 6" Bores	4.250" +.0002"	.005"	1 min.
Chrome Plated Diesel Liner	32"	8.500" ±.0005"	.004"—.006" of chrome	3 min.

Get more facts on how Fulmer Honing Machines save production time, cut costs, and improve quality on finishing cylindrical bores. Write for illustrated folder giving machine specifications.

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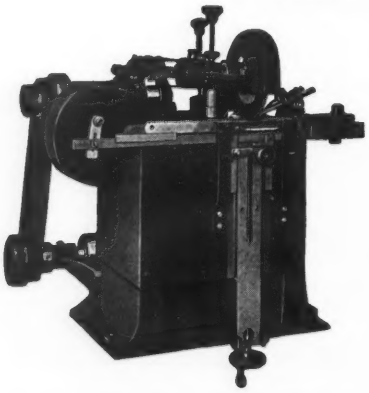
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More Metal cut per blade

...when blade is sharpened with E. C.



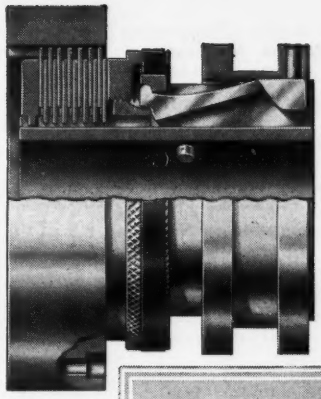
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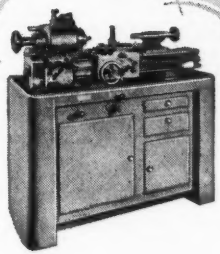
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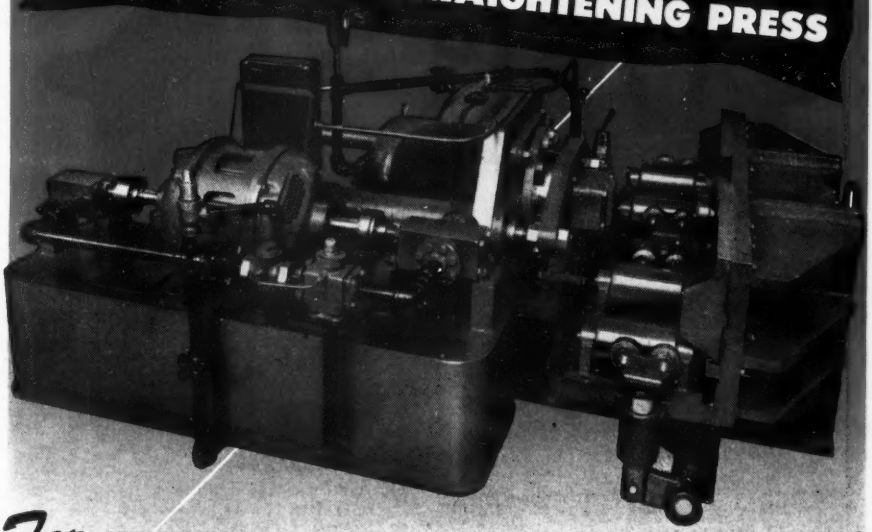
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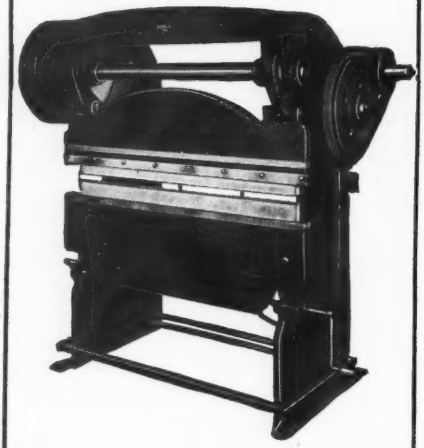
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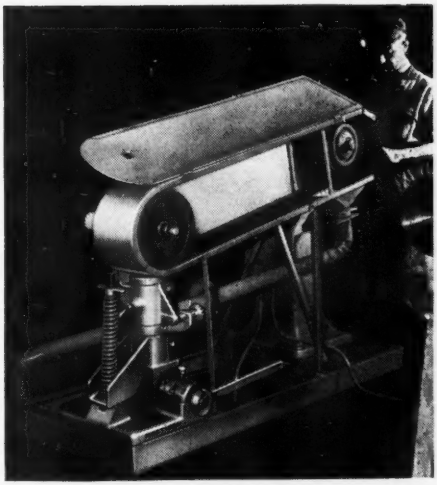
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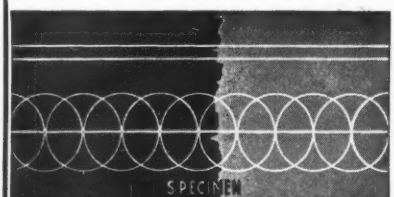
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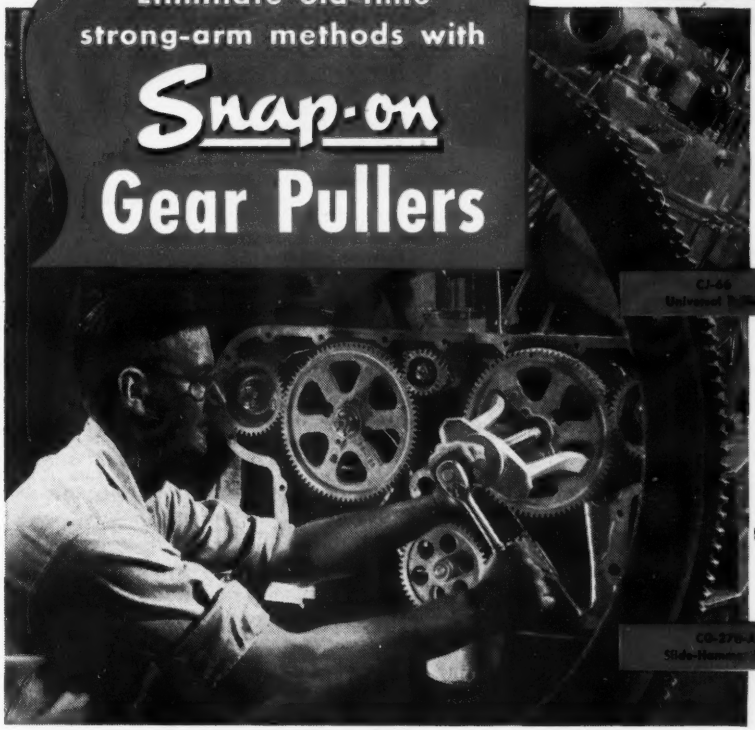
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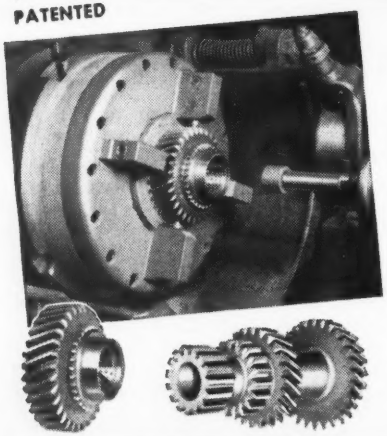
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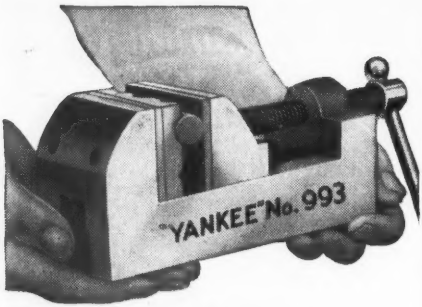
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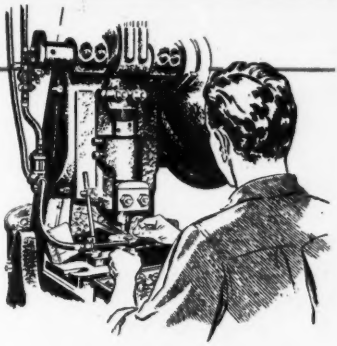
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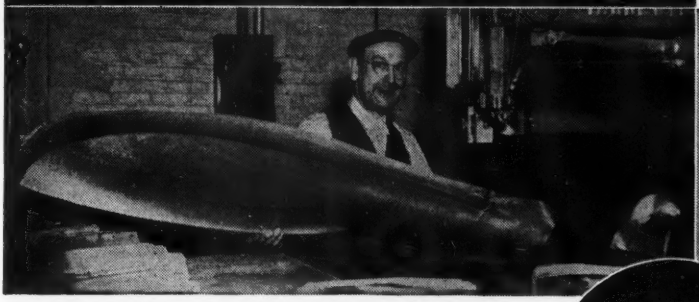
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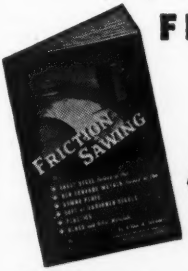


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and performing a host of other metal cutting jobs!

The negligible down-drag and the ability of Tannewitz High Speed Band Saws to cut sheet metal from 90° to near 0 or 135° at tremendous speed make these machines ideal for trimming. Cuts can be made with perfect safety without using a rest of any kind.

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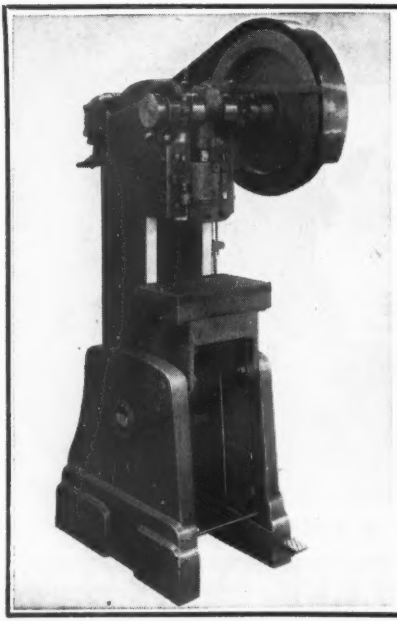
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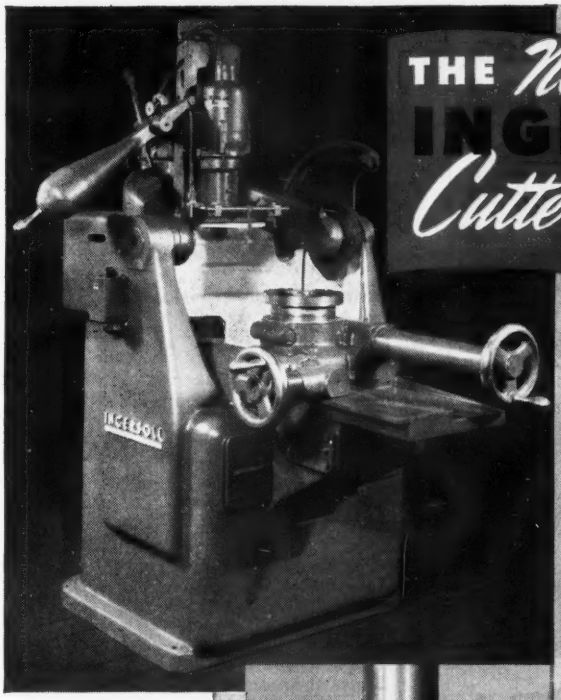
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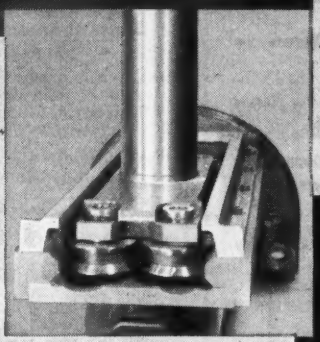
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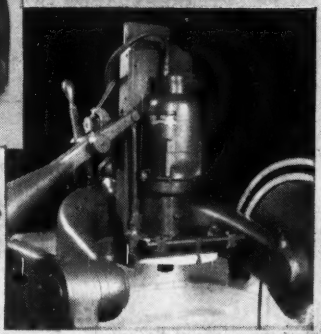




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Mounts in standard yoke. Write for quotation on new head.



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THE *New* MODEL 1100 HYBCO TAP GRINDER



- **Capacities No. 2 Mach. Screw to 1½" Hand Taps.**
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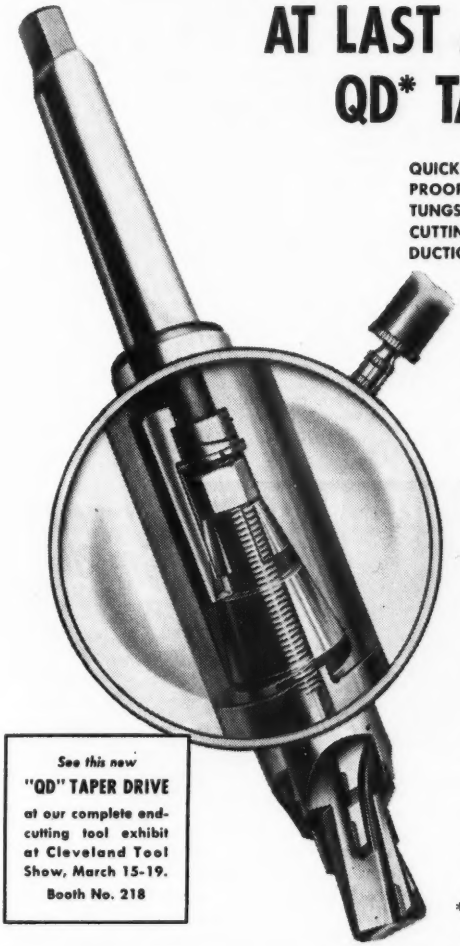
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See this new
"QD" TAPER DRIVE
at our complete end-cutting tool exhibit at Cleveland Tool Show, March 15-19.
Booth No. 218

- In keeping with advancement of Tungsten Carbide technique in high production manufacturing, this new construction has been under development for several years by ECLIPSE engineers to meet the particular and greater demands imposed upon Carbide-tipped-end cutting tools.

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Interchangeable with Stock Eclipse Pilots

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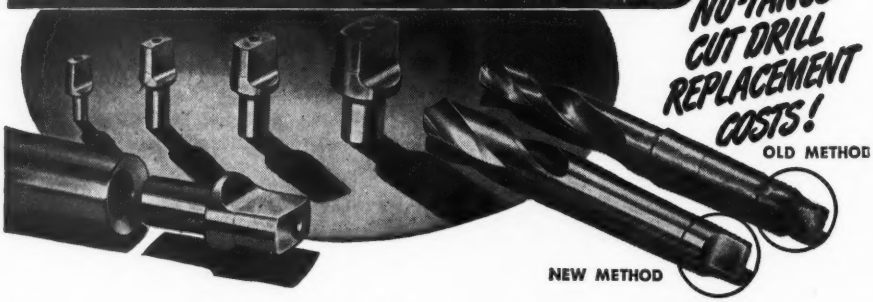
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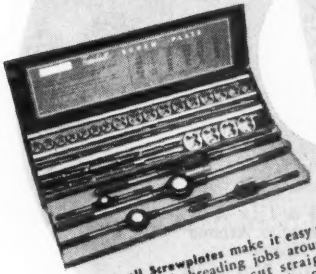
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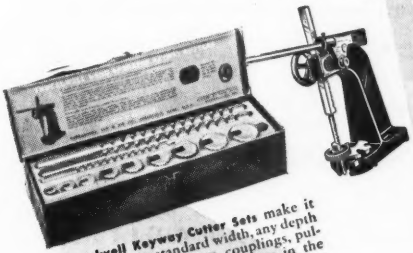
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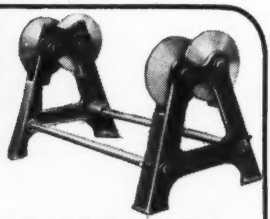
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Here's a complete line of Balancing Tools which will save their cost quickly on balancing or truing operations. Accurately sensitive and durable, they provide a simple, reliable means for checking the balance of parts like gears, shafts, fly wheels, pulleys, etc. The standard sizes available are shown in capacity chart at right.

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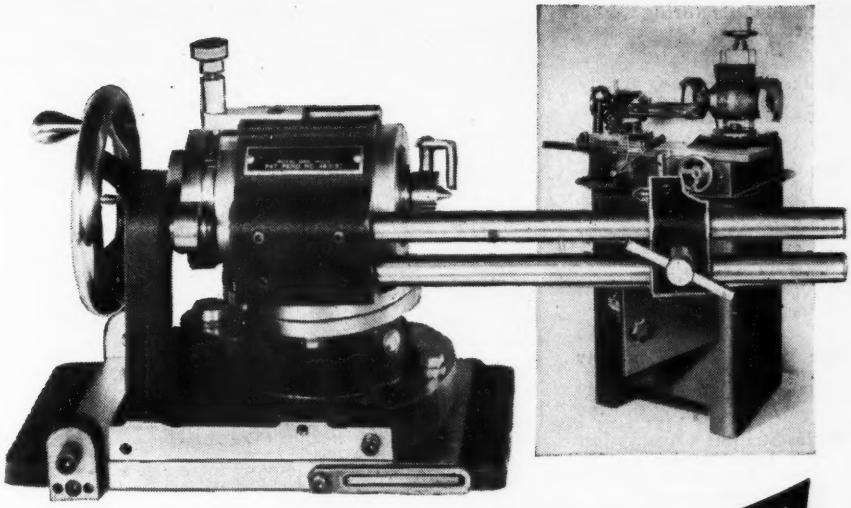
Swing	Between Standards	Weight Capacity
21 in.	20 in.	12 lbs.
21 in.	20 in.	800 lbs.
43 in.	29 in.	800 lbs.
43 in.	29 in.	2,000 lbs.
6 ft.	5 ft.	5,000 lbs.
8 ft.	8 ft.	10,000 lbs.
Any	Any	24,000 lbs.
43 in.	30 in.	800 lbs.



FREE ADDITIONAL DATA

You can obtain complete information on Sundstrand Balancing Tools by writing for bulletin No. 570.

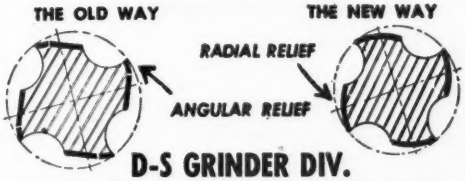
SUNDSTRAND MACHINE TOOL COMPANY
2539 Eleventh St. Rockford, Ill., U.S.A.



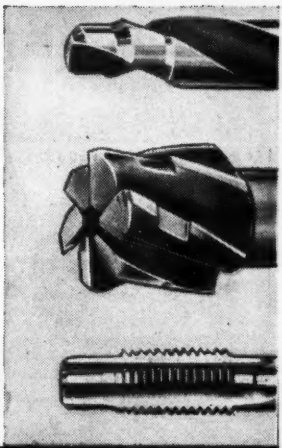
Make A Note Now To See The DS RADIAL RELIEF GRINDER

Booth 105—A. S. T. E. SHOW—CLEVELAND

With D-S you can radially relieve to a clean cutting edge almost any form that can be dressed in the wheel. Leave margin if you wish, parallel with the flute—convert twist drills into special step cutters, etc. Any good grinder hand can do this work faster than plain angular back off.



Step Drills • Taps • Reamers • Counter Bores • Profile Mills • Center Drills • Gear Tooth Rounding Cutters • Etc.



D-S GRINDER DIV.
ROYAL OAK TOOL AND MACHINE CO.
621 East Fourth Street • Royal Oak, Mich.

WRITE FOR OUR CATALOG

Union Manufacturing Company
New Britain, Connecticut
Booth No. 1621

Up-To-Date Tool Company
17 Mattson Avenue
Worcester, Massachusetts
Booth No.

Vapor Blast Manufacturing Co.,
333 S. Sixteenth Street
Milwaukee 3, Wisconsin
Booth No. 124

The Viking Tool Company
P. O. Box 286
Nichols Road
Shelton, Connecticut
Booth No.

The Vulcan Tool Company
730 Lorain Avenue
Dayton 10, Ohio
Booth No. 825

Wales-Strippit Corporation
353 Payne Avenue
North Tonawanda, New York
Booth No. 623

Walker-Turner Co., Inc.,
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EFFICIENCY and
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The GLENNY
Adjustable Expansion
PUSH BROACH



Keyways of Precision Accuracy on your Arbor Press—in Small Quantities

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One Day's Saving Often Pays for a Glenny
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Cleveland 9, Ohio
Booth No. 1825

Weddell Tools, Incorporated
37 Centennial Street
Rochester 11, New York
Booth No. 424

The Weldon Tool Company
3000 Woodhill Road
Cleveland, Ohio
Booth No. 205

Wells Manufacturing Corporation
Three Rivers, Michigan
Booth No. 1406

Wendt-Sonis Company
10th and Collier Streets
Hannibal, Missouri
Booth No. 225

Wesson Company
1220 Woodward Heights Boulevard
Ferndale 20, Michigan
Booth No. 117

Wetmore Reamer Company
418 N. 27th Street
Milwaukee, Wisconsin
Booth No. 318

The Whiton Machine Company
New London, Connecticut
Booth No. 1114

The Wickman Corporation
15533 Woodrow Wilson
Detroit, Michigan
Booth No. 915

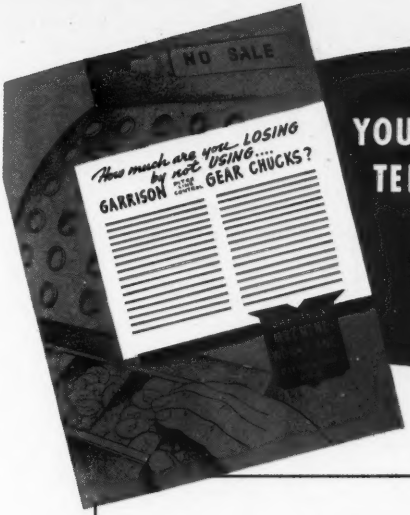
Willey's Carbide Tool Company
1340 W. Vernor Highway
Detroit, Michigan
Booth No. 118

Wilson Mechanical Instrument Co., Inc.
383 Concord Avenue
New York 54, New York
Booth No. 1432

N. A. Woodworth Company
1300 E. Nine Mile Road
Detroit 20, Michigan
Booth No. 1115

Zagar Tool Incorporated
23880 Lakeland Boulevard
Cleveland 17, Ohio
Booth No. 1531

W. M. Ziegler Tool Company
1924 Twelfth Street
Detroit 16, Michigan
Booth No. 1402



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Here is a booklet that will help you find where, why, and how much your costs are higher than necessary . . . on an over-all or plant basis . . . due to inadequate gear chucks. You will be amazed at the many ways you may be losing money throughout your plant due solely to inadequate gear chucks in the gear department. This information has never been published before. It is based on our experiences in hundreds of gear plants during the twenty-five years we have been supplying them precision, custom-built gear chucks. You can read it in fifteen minutes.

Whether you run a department or an entire plant, buy material or sell your firm's output, this booklet will be of great value to you.

Write today on your letterhead for this important and timely booklet. Your request will be filled promptly by mail.



GARRISON MACHINE WORKS, INC.
DAYTON 4, OHIO, U.S.A.

WORLD'S LARGEST MANUFACTURER OF PITCH LINE CONTROL GEAR CHUCKS

GARRISON MACHINE WORKS, INC. DAYTON 4, OHIO U.S.A.

32 ALUNDUM®

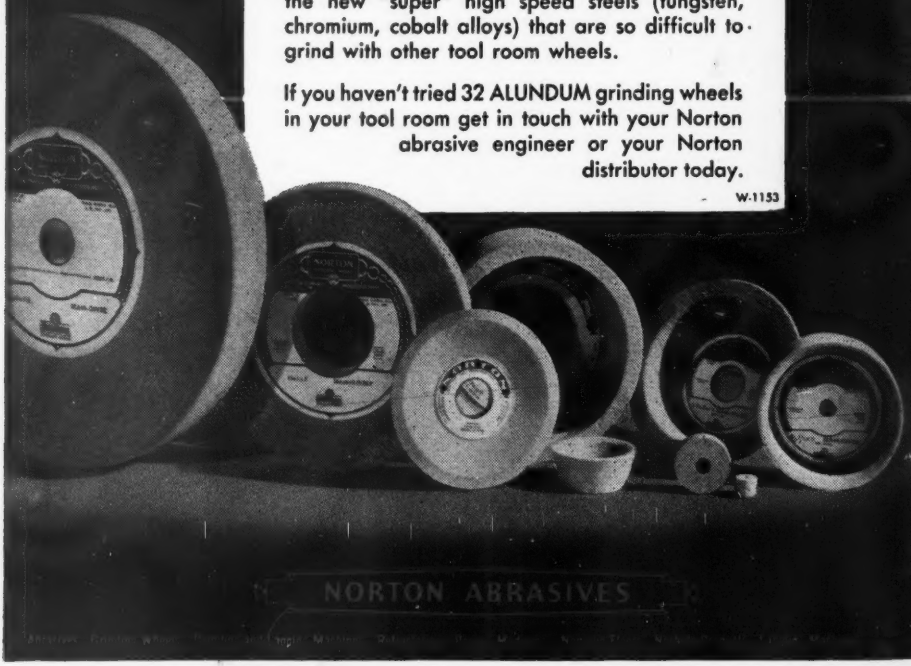
Fast Cutting . . . Cool Cutting
Few Dressings . . . Long Life

32 ALUNDUM abrasive gives you these four features in a far greater degree *than any other abrasive* — because it's made differently by a Norton-developed and patented process. Its unique single-crystal grains are *sharper* — they penetrate hard, tough high speed steels more easily — cut faster and cooler.

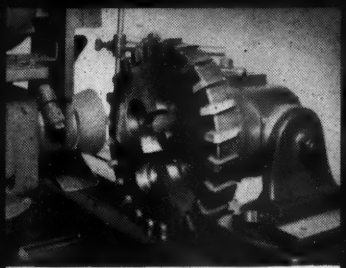
32 ALUNDUM wheels, for example, will grind the new "super" high speed steels (tungsten, chromium, cobalt alloys) that are so difficult to grind with other tool room wheels.

If you haven't tried 32 ALUNDUM grinding wheels in your tool room get in touch with your Norton abrasive engineer or your Norton distributor today.

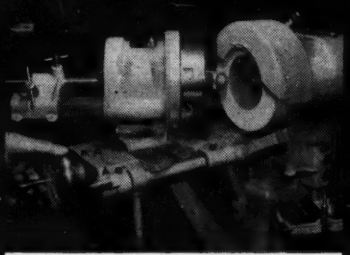
W-1153



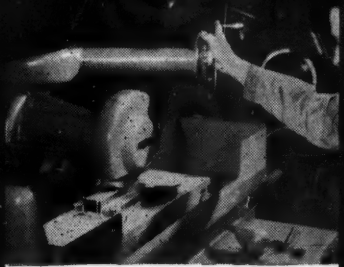
Outstanding for TOOL ROOM GRINDING!



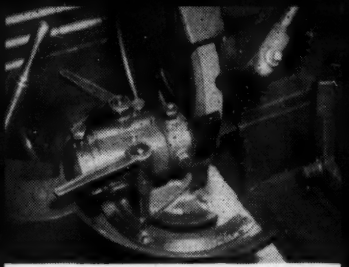
Because they stay sharp without frequent truing "32" wheels are ideal for multi-tooth cutters — will hold size all the way around without burning. Suggested specification: 32A46-K5VBE.



The cool cutting action of "32" prevents burning of sensitive H. S. S. drills and its versatility simplifies the grinding of a variety of sizes. Suggested specification for medium and large drills: 32A46-M5VBE.



"32" wheels give the extreme precision necessary for tool room surfacing jobs and they give it faster — with feeds several times greater than you've done before. Suggested specifications: 32A46-H8VBE or 32A60-F12VBEP.



You'll find "32" wheels the fastest cutting you've ever used for single point tools — whether you sharpen offhand or by machine. Suggested specifications: offhand 32A30-05VBE (roughing), 32A60-M5VBE (finishing); machine 32A36-L5VBE.

NORTON COMPANY, WORCESTER 6, MASS.



MODEL 30H MAN-AU-TROL HORIZONTAL LATHE PRODUCES 3 IDENTICAL PIECES IN LESS TIME THAN NORMALLY REQUIRED FOR ONE

For lowering costs on between-center shaft turning work, this new BULLARD Man-Au-Trol machine offers advantages never before found in horizontal lathes.

Identically Tooled Spindles Cut Unit Costs

Three finished pieces per cycle . . . simplified tooling for rough and finish cuts . . . tools cutting almost continuously. As a result the BULLARD Model 30H Lathe not only outproduces three ordinary horizontal lathes but also reduces tooling costs.

Makes Operator's Job Easier

Headstock and all operating controls conveniently located at operator's right. Foot-controlled, hydraulically operated chucks leave operator's hands free. Work and tools always visible, easily accessible. No reaching across tools or tool slide.

An Automatic All-Purpose Machine

Man-Au-Trol, *the automatic control that is as versatile as manual control*, makes this highly productive lathe an all-purpose machine. Quickly, easily changed from job to job. Instantly convertible from automatic to manual operation. Practical for long or short runs.

Write for Literature

Investigate new BULLARD Model 30H Man-Au-Trol Horizontal Lathe. Complete specifications on request. THE BULLARD COMPANY, Bridgeport 2, Connecticut.



NEW LOW PRICES
Almost Down to H.S.S.

Now you can get the better finish and longer wear of carbide on many jobs where carbide has been regarded as too costly!

All sizes in stock, ready for immediate shipment.

STRAIGHT SHANK — STRAIGHT FLUTE

STOCK NO.	SIZE IN.	NO. OF FLUTES	SHANK DIA.	LENGTH O. A.	STD. PKG. QUAN.	PRICE EACH
NRS-1	1/4	4	7/32"	6"	6	$3.75
NRS-2	9/32	4	1/4"	6"	6	4.00
NRS-3	5/16	4	9/32"	6"	6	4.00
NRS-4	11/32	4	5/32"	6"	6	4.25
NRS-5	3/8	4	11/32"	7"	6	4.25
NRS-6	13/32	4	11/32"	7"	6	4.75
NRS-7	7/16	4	3/8"	7"	6	4.75
NRS-8	15/32	4	13/32"	7"	6	5.00
NRS-9	1/2	6	7/16"	8"	6	5.50
NRS-10	17/32	6	7/16"	8"	6	5.75
NRS-11	9/16	6	7/16"	8"	3	5.75
NRS-12	19/32	6	7/16"	8"	3	6.25
NRS-13	5/8	6	1/2"	9"	3	6.25

Not supplied in Taper Shank (*we suggest use of std. split sleeve reamer driver if T. S. is necessary.*) Standard tolerance, plus .0005", minus .0000".

★ *See them at the A.S.T.E Show, Cleveland, March 15th-19th. Also, see the new Super Ejector Type Tools in operation.*

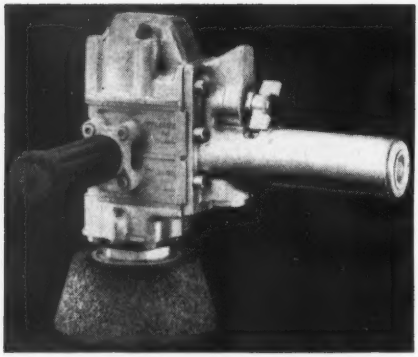
STANDARD AND SPECIAL **SUPER** *Carbide Tools*

SUPER TOOL COMPANY

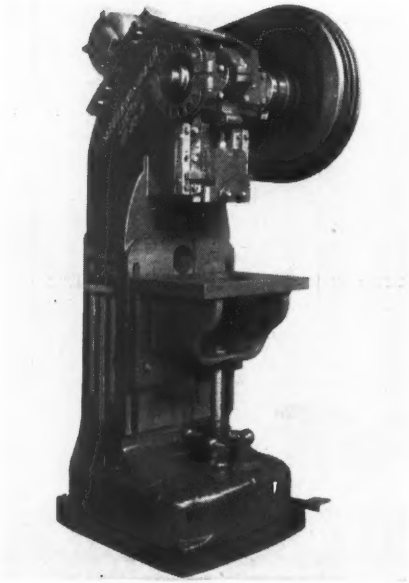
21650 Hoover Rd., Detroit 13, Michigan • 5210 San Fernando Rd., Glendale 3, California

"Prevue

A Preview of the machines, accessories that will at the A.S.T.E. Sixth



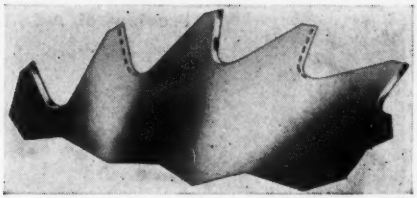
One of the hand tools to be displayed at the A.S.T.E. Show by The Rotor Tool Co., 17325 Euclid Ave., Cleveland Ohio, will be the B-10 Vertical Grinder shown herewith, which is intended primarily for the vertical grinding of large and small castings; leveling off welds; and removing gates, fins, and so on. It can be operated at various speeds, depending upon the size of grinding wheel used, and is also adaptable for sanding operations, such as finishing sheet metal, smoothing up electric welds, and so on. Booth No. 1416.



The Rousselle 25-Ton Horning Press shown herewith will be exhibited at the A. S. T. E. Show by the Service Machine Co., 7633 S. Ashland Ave., Chicago 20, Ill. The press features an adjustable bed table which can be quickly and accurately raised or lowered to suit the die to be used. The press can also be furnished with special bed tables to provide a greater shut die height than obtained with the standard table or for use in processing large, unwieldly or odd-shaped work. The ways are of hardened and ground steel. The flywheel is of a solid web type and is mounted on two sets of roller bearings. The press frame is of heavy box type construction and is said to support the crankshaft rigidly, thus reducing deflection to a minimum. The press has a single-stroke attachment and can be quickly changed over to repeat or continuous operation. Booth No. 1813.

Section"

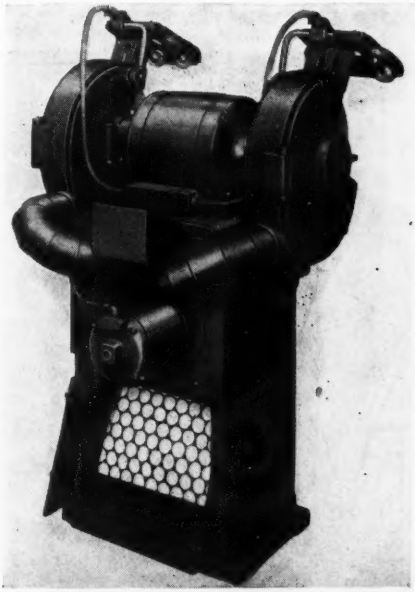
tools and machine
be on display
Industrial Exposition.

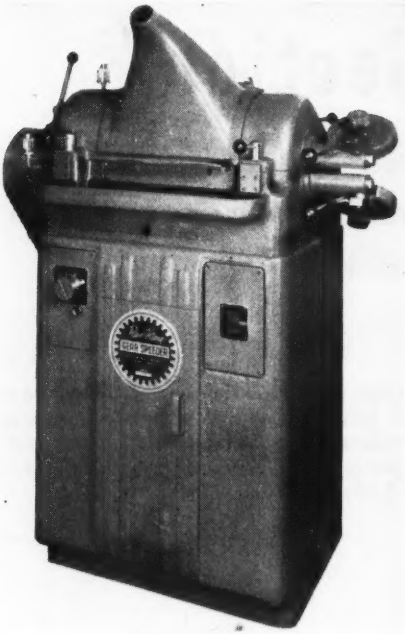


Cutting tools for plastics and soft tenacious metals will be among the products exhibited by the Reltool Corp., Milwaukee, Wis., at the A.S.T.E. Show. In addition to standard cutting tools such as end mills, center-reamers, miniature end mills, keyseat cutters, lathe mandrels, stub arbors, slitting saws, and related items, the company will feature a circular saw of high speed steel, as illustrated herewith, which is designed specifically to cut plastics without overheating or galling. The saw is hollow ground with an unusually deep dish clearance on the sides to eliminate friction, reduce galling, and generate a minimum of heat. The teeth are ground with alternate right and left-hand pitch with extra clearance on ground lands to assure free cutting and easy elimination of chips. Booth No. 227.

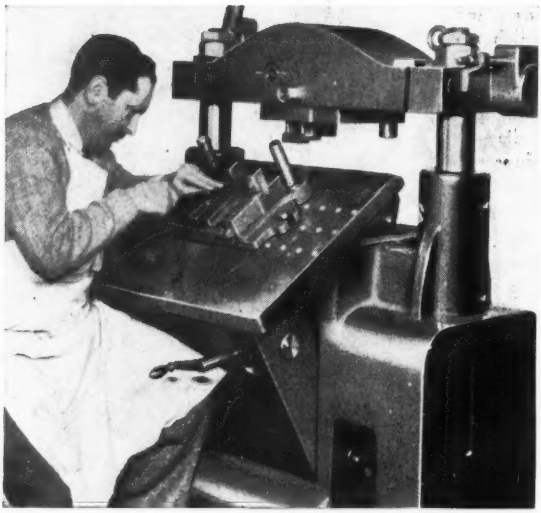
———— «» ————

Included among the grinding and polishing equipment to be exhibited at the A.S.T.E. Show by Hammond Machinery Builders, Inc., 1615 Douglas Ave., Kalamazoo 54, Mich., will be the Hammond "No-Dust" Grinder which features a self-contained dust collector in the base. The machine can be used for tool, snagging, and general purpose grinding operations and is available in three floor type models for 10, 12, and 14-inch wheels. The fan motor of the dust collector is connected with the switch controlling the grinder motor so that both are started and stopped with the same switch. The dust-laden air is drawn from the grinder wheel guards through an air chamber to the bottom of the base where heavier particles drop into a dust pan. The air is then drawn up through a set of three fiber glass filters which remove the finer dust particles.

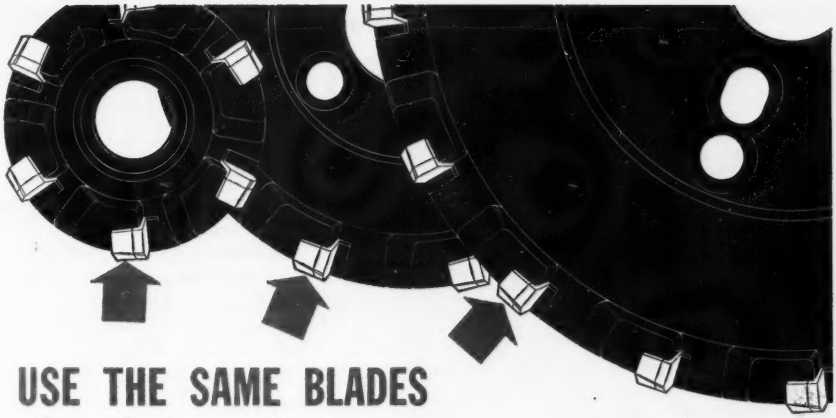




On exhibition at the A.S.T.E. Show by the National Broach & Machine Co., 5600 St. Jean, Detroit 13, Mich., will be Red Ring Gear Sound Tester shown herewith, which is designed for the purpose of studying the operation of gear sets at various speeds and loads without other sound interference. The unit is not only said to eliminate other sounds but to concentrate and amplify gear noise by reason of a specially designed acoustical sound box and horn. Sound amplification is approximately 50 times, thus permitting the sound tester to be used anywhere, even in a busy shop. Booth No. 1223.



The Alpha Tool Works, 9281 Freeland Ave., Detroit 27, Mich., will display at the A.S.T.E. Show its production type die tryout press which is designed to try dies under actual production conditions (100 strokes per minute). It includes a head and bolster that can be tilted so that the final finishing operations on each die can be performed without removing the die from the press. Two models, the 40-ton and 80-ton, will be shown, with the former in operation. Booth 1841.



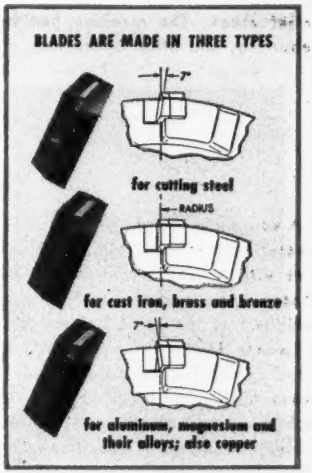
USE THE SAME BLADES for all sizes of cutters

Standardize on E-Con-O-Mill for all your face milling needs and achieve several substantial savings in operating cost.

You cut down your tool inventory by stocking blades (and locks) which fit all cutter bodies, made in standard sizes 5-inch diameter and over.

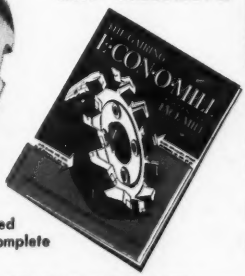
You reduce down-time of your machines by having blades replaced without removing the cutter from the machine. All blades are furnished ready to go to work, and may be re-sharpened individually on a carbide grinder by using a standard checking gage furnished by us. Blades are easily replaced by hand. A standard Allen wrench is the only tool required.

Moreover, these economy features do not interfere with the E-Con-O-Mill being a most efficient tool. Its new design incorporates the latest developments in cutting tool engineering. Its sturdy construction provides truly one-piece rigidity.



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The GAIRING

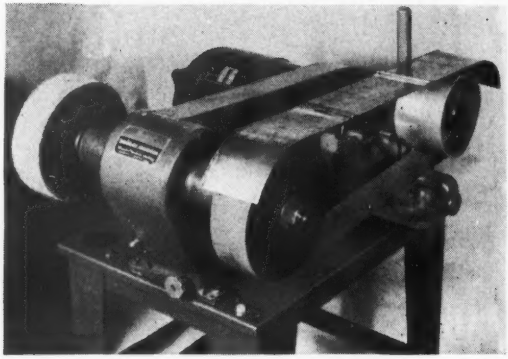
E-CON-O-MILL

A New Carbide Face Mill Made in Standard Sizes 5-inch Diameter and over

REDUCE DOWN-TIME OF YOUR MACHINES

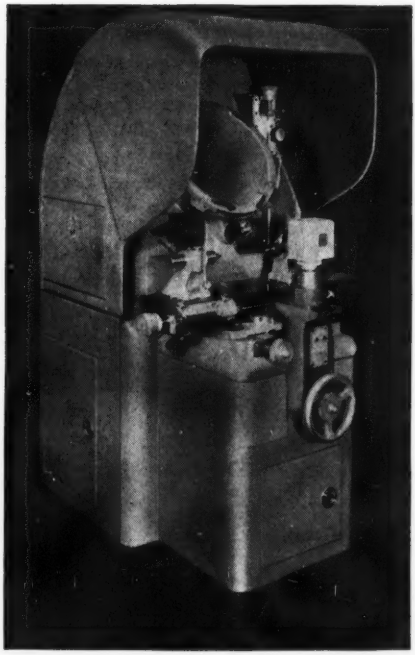
CUT DOWN YOUR TOOL INVENTORY

The GAIRING TOOL COMPANY, P.O. Box 478, Roosevelt Park Annex, Detroit 32, Michigan



At the A.S.T.E. Show, Hammond Machinery Builders, Inc., 1615 Douglas Ave., Kalamazoo 54, Mich., will feature, among other grinding and polishing products, the Model 50-A Abrasive Belt Grinder-Polisher illustrated herewith. The design of the unit includes a contact wheel, flexible belt, and platen especially adaptable for the finishing of contour, inside, and hard-to-get-at areas. The machine can be used for grinding, polishing, removing fins and gates, deburring, and other operations. It is available in several variations.

A complete line of optical comparators and measuring machines, auto-opening threading dies with ground thread radial and tangent chasers, and carbide cutting tools will be exhibited at the A.S.T.E. Show by the Jones & Lamson Machine Co., Springfield, Vt. Featured among the comparators will be the new heavy duty pedestal Model PET-14 with 14-inch diameter screen and power elevated table. This model is specifically designed to assure utmost stability when measuring heavy objects. The hardened and ground table is 30 inches long and operates on balls in hardened V-inserts in the bed. Vertical measurements are made by means of a sliding head equipped with a 0.0001-inch indicator attached to the slide support and a 0.0001-inch micrometer attached to the table support. The table can be compounded 20 deg. either side of center for inspecting objects with helices. Objects up to 8 inches in diameter and 20 inches long between centers can be inspected at magnifications ranging from 10 to 100. Booth No. 1206.



FULFLO

CENTRIFUGAL COOLANT PUMPS

BIG REDUCTIONS

IN FRICTION HEAT WEAR AND TEAR ON TOOLS AND WORK

COOLANTS...

you select the cooling agent your experience indicates . . . reach cutting tools and work surfaces so that tools last longer and work comes out better. A lifetime of experience in coolant pumps is at your service in every FULFLO model . . . scores of them ready or built to special designs.

Pipe sizes: 3/8" to 1 1/2".

***Write on your letterhead for personal copy of* FULFLO MECHANICAL DATA BOOK.**



FULFLO Specialties Co., Inc.
BLANCHESTER, OHIO

Preview of A.S.T.E. Industrial Exposition



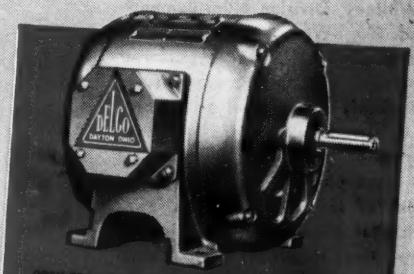
Booth No. 825 at the A.S.T.E. Show will include an exhibition by the Vulcan Tool Co., 730 Lorain Ave., Dayton 10, Ohio, built around the company's transfer machine, its jig grinding attachment, and an assortment of special tools and die work. The Vulcanaire Jig Grinding Attachment, as illustrated herewith, will be demonstrated on a jig borer and a milling machine to show how this attachment can be used to convert such machine tools to jig grinders. The attachment has controllable speed ranges up to 65,000 r.p.m. and can be used for locating and finish grinding hardened holes with diameters of from 1/16 to 1½ inches to tenths of an inch. It is equipped with a standard dust elimination system which can be used for dressing the grinding wheel and for actual jig grinding operations. Vulcan's transfer machine, the Vulcamatic, will be displayed on the backdrop of the booth. This machine consists of a series of machine tool stations grouped together in one automatic line for drilling, reaming, tapping, boring, counterboring, and milling a part in any sequence or cycle.

At the A.S.T.E. Show, The DoAll Co., Des Plaines, Ill., will exhibit in Booth No. 1017 fifteen machine tools, including contour and high speed sawing machines, surface grinders, tool grinders, band filers, cutting off machines, automatic inspection machines, variable speed pulleys, and a new 27-ton press. Featured will be a diamond band sawing machine, as shown herewith, which employs a diamond saw band and flushing coolant for cutting hardened steel, tungsten carbide, stone, and vitreous materials. The machine has a 16-inch throat depth and 10-inch work thickness capacity. Designed to utilize various pitch diamond saw blades containing cylindrical segments consisting of diamonds tightly bonded in a sintered tungsten alloy matrix and electronically brazed to each "tooth" on the steel band, the machine provides a 24-inch square box-type work table, tiltable 45 deg. to the right, 10 deg. to the left, front, and rear and fitted with splash guards. Also equipped with a set of special saw guides and blade wipers, the machine includes a coolant pump, coolant reservoir, and drain troughs, and is furnished with a 2 h.p. drive motor. In addition, the unit includes a variable Speedmaster drive mechanism for providing stepless cutting speeds of 3,000 to 8,000 f.p.m.

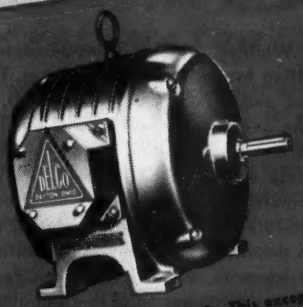


DELCO

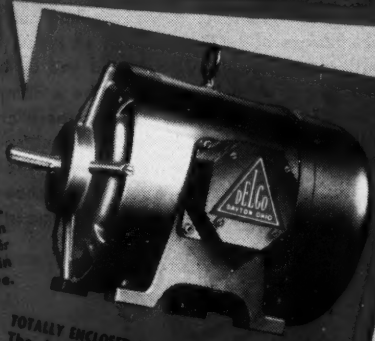
The Right Motor for Each Requirement!



OPEN FRAME BALL BEARING—This frame is compact, rugged, and allows a large volume of cooling air to flow through the motor. The accessibility of all parts makes this type motor popular with maintenance men. It has proved most satisfactory for general popular applications where dust and dirt are not important factors. Now available in frame sizes 203 through 365 inclusive.



TOTAL ENCLOSED BALL BEARING—This exceptionally strong frame is desirable in locations where dust and dirt in the air cannot be controlled. Now available in frame sizes 203 through 225 inclusive.



TOTALLY ENCLOSED FAN-COOLED BALL BEARING—The ideal motor frame to protect motor windings and rotating parts in atmosphere laden with injurious particles—iron dust, foundry sand, etc. This type now available in frame sizes 204 through 505 inclusive.

For additional information on Delco Motors, write to Delco Products for complete data.

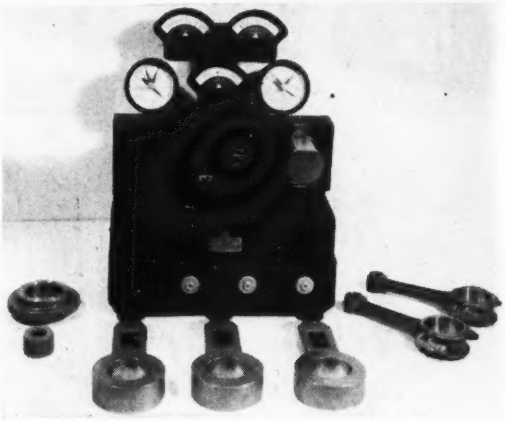
DELCO PRODUCTS DAYTON, OHIO

DELCO MOTORS

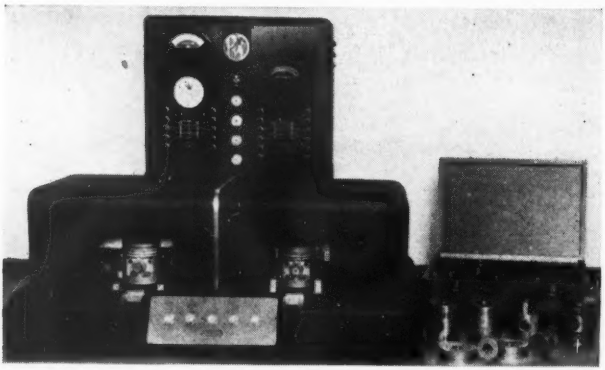
DIVISION OF GENERAL MOTORS CORPORATION

Preview of A.S.T.E. Industrial Exposition

The multiple station connecting rod gage shown herewith is typical of the combination comparator gages to be exhibited in Booth No. 212 at the A.S.T.E. Show by Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford Conn. This gage is designed to perform five major gaging operations simultaneously on automobile connecting rods. These include the gaging of the inside diameter of the crank pin hole, the inside diameter of the wrist pin hole, the horizontal alignment (parallelism), the vertical alignment (twist), and the center distance between holes.



In Booth No. 212 at the A.S.T.E. Show, Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford, Conn., will display a variety of cutting tools and precision gages. The cutting tools will include taps, dies, reamers, milling cutters, and a variety of special tools, as well as the newest designs of carbide tools of all types. The gage exhibit will show the full P&W line of conventional gages, including thread and cylindrical plug and ring gages, roll thread snap gages, and so on. Also included will be a complete exhibit of basic measuring equipment showing the P&W measuring machine, Supermicrometer, precision gage blocks, lead testers, and standard Electrolimit and Air-O-Limit comparators for external and internal measuring. Featured in the gage exhibit will be a considerable display of combination comparator gages, including the multiple station piston gage shown herewith, which is designed for checking automotive pistons and similar parts. This gage utilizes a combination of three gaging mediums in checking 14 different dimensions on the piston; namely, the Electrolimit, the Air-O-Limit, and the electric contact methods. In addition to being designed to perform these gaging operations, the gage is also equipped with a push-button operated multiple ink marking device so that the skirt diameter of the piston is given a grading symbol.



✓ LOWEST COST
✓ HIGHEST QUALITY!

NEW
CHIP BREAKER
GRINDER
by
Hammond
of KALAMAZOO



HAMMOND
Floor Type
Model C-4

Here's the answer to your chip breaker grinding problem. No longer is it necessary to tie up expensive grinding equipment or put up with slow makeshift methods to grind chip breakers. The HAMMOND Model C-4 is low cost — precision built — and especially designed for carbide chip breaker grinding. Note these features:

- Any-Angle Vise accommodates all angles
- Capacity — Box and Single-Point Tools up to 2"
- Fully Protected — Moving parts protected from grit and sludge
- Easy operating Reciprocating Table
- Heavy Machine Tool Construction

Available in bench model ($295.00) or floor model ($330.00). Prompt shipment. WRITE FOR CATALOG.

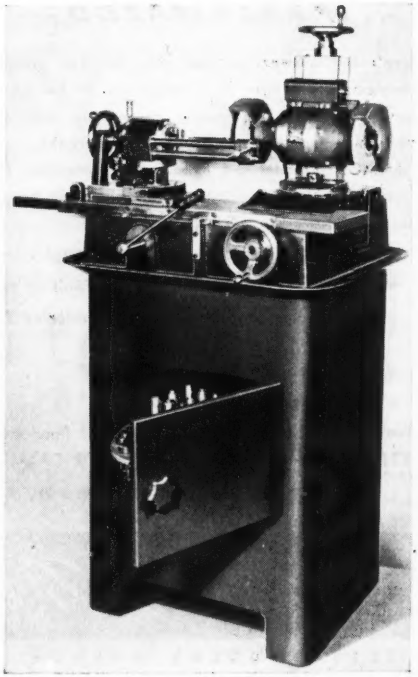
Visit our Booth No. 610-614 at the A.S.T.E. Exposition, Cleveland, March 15-19

Hammond Machinery Builders INC

1615 DOUGLAS AVENUE • KALAMAZOO, MICHIGAN



Among the five Red Ring products to be exhibited at the A.S.T.E. Show by the National Broach & Machine Co., 5600 St. Jean, Detroit 13, Mich., will be. a universal gear checker and lead comparator which can be easily used to rapidly check a gear for tooth spacing, helical angle, wobble, eccentricity, and tooth size, as well as the lead of helical gears and the parallelism of spur gears, in addition to the amount and position of crown on teeth having the elliptoid form. The unit consists of a rigid, heavily webbed, accurate surface plate upon which removable measuring heads are mounted. The work to be checked is mounted between centers on movable head and tailstocks, at right angles to which are mounted the measuring heads.



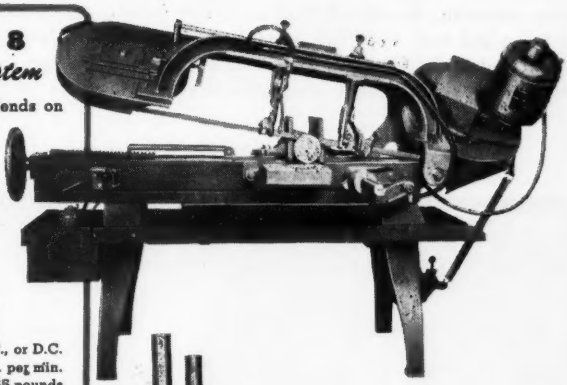
The D-S Grinder Division, Royal Oak Tool and Machine Co., 623 4th St., Royal Oak, Mich., will exhibit its D-S Radial Relief Grinder and new motor column at the A.S.T.E. Show. The grinder is designed for producing radial relief on cutting tools with 1 to 14 flutes while preserving any form. Its construction allows for grinding to an edge free of "feathers" or leaving a land parallel with the flute, even on spiral tools. The machine can be easily set up and operated. Booth 105.

Two Fine *Metal Cutting Saws* for Production and General Utility

WELLS No. 8

with wet cutting system

Here's a saw that will pay dividends on practically any cut-off job. It's fast, versatile and economical. The wet cutting system illustrated is a low cost extra that makes possible higher cutting speeds and longer blade life.



Specifications

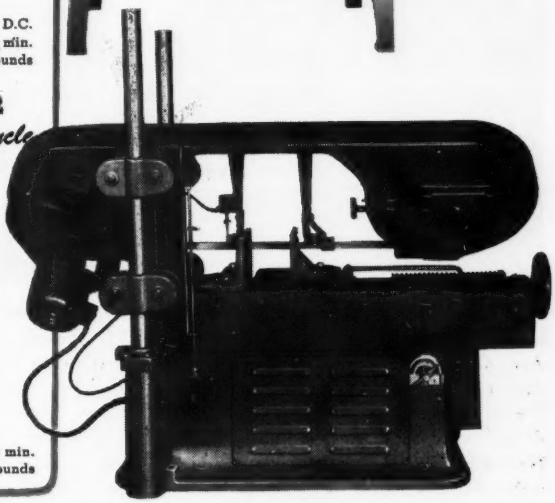
CAPACITY:
- Rectangular . . . . 8" x 16"
- Special Guides . . 5" x 24"
- Rounds . . . . . 8" O. D.

MOTOR . . . . . ½ H.P., A.C., or D.C.
SPEEDS . Selective; 60, 90, 130 ft. per min.
WEIGHT . . . Approximately 665 pounds

WELLS No. 12

with automatic cutting cycle

The new Wells No. 12 is an electrically powered, hydraulically controlled saw. Just push a button and the head comes down and makes the cut at a controlled blade pressure. At the completion of the cut the head returns to a predetermined position and the motors shut off.



Specifications

CAPACITY:
- Rectangular . . . . . 12" x 16"
- Rounds . . . . . 12¾" O.D.

MOTORS . . . ¾ H.P. and ½ H.P.
SPEEDS . Selective; 50, 90, 150 ft. per min.
WEIGHT . . Approximately 1750 pounds

Wells SAWS

Wells

See the Wells saws in action in Booth 1406 at the A.S.T.E. Show.

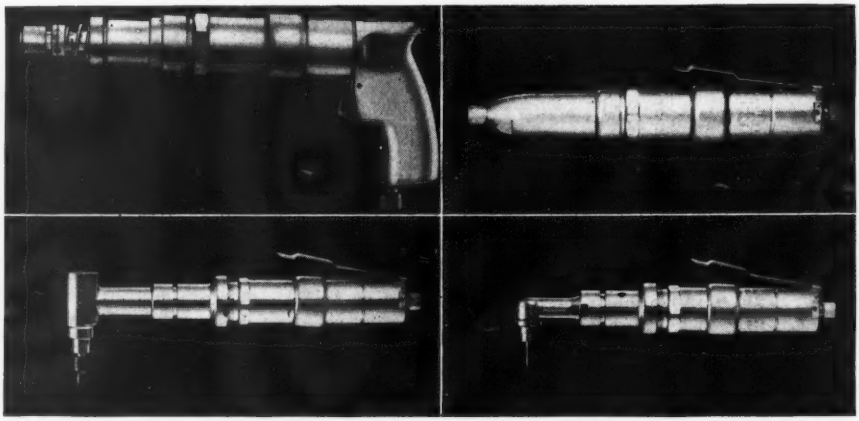
Products by Wells are Practical

METAL CUTTING BAND SAWS

WELLS MANUFACTURING CORPORATION
808 TYLER STREET, THREE RIVERS, MICH.

Preview of A.S.T.E. Industrial Exposition

The hogging off of metal and flat surfacing of non-ferrous parts freehand will be demonstrated by the Porter-Cable Machine Co., 1714 N. Salina St., Syracuse 8, N. Y., in Booth No. 1711 at the A.S.T.E. Show. A complete line of wet-dry abrasive belt machines will be operated on production, as well as sample, jobs. Among the machines to be in operation will be the C-6 Contour Grinder and Polisher for polishing curved and contoured parts of metal and other materials; Model L-4 Centerless Belt Grinder for grinding and polishing various sizes of tubes and rods; small belt grinders for toolroom use; large model belt grinders with automatic feed tables for production runs; bench model belt grinders for deburring and clean-up jobs; and backstand idlers, adaptable to any buffing jack for fast polishing.



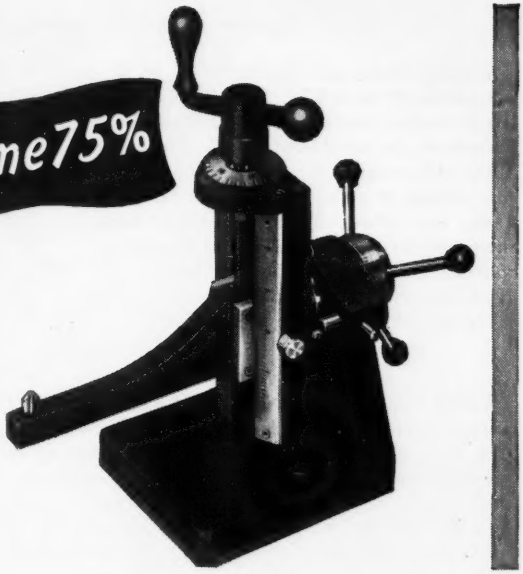
The several models of nut setters and screw drivers shown herewith will be among the products exhibited in Booth No. 1416 at the A.S.T.E. Show by The Rotor Tool Co., 17325 Euclid Ave., Cleveland, Ohio. The Midget M-851 nut setter or screw driver (upper left) features a double adjustable clutch which has an auxiliary clutch for starting the main clutch in motion. The tool, which has a speed of 1,000 or 2,000 r.p.m., can be provided with a 9/32-inch square drive for nut sockets up to 1/4 inch, as well as 1/4-inch hex socket for screw driver bits up to No. 12 screws. It is available with a pistol grip or lever throttle. The Midget M-1117 nut setter or screw driver (upper right) is short coupled with shrouded double adjustable clutch, and can be obtained with a threaded spindle for threaded shank nut socket adapter for nut sockets up to 1/4 inch or threaded shank screw driver bits up to No. 12 screws. It is also designed to accommodate a 1/4-inch hex socket for nut socket adapter for nut sockets up to 1/4 inch or 1/4-inch hex shank screw driver bits up to No. 12 screws. The tool can be operated at a speed of 1,000 or 2,000 r.p.m. and is available with a pistol grip or lever throttle. The Midget M-851 screw driver and nut setter (lower left) is a right angle tool with KRA-2 head having a 9/32-inch square end for nut sockets up to 1/4 inch or with threaded spindle for threaded shank bits for light Phillips head screw driving. It can be operated at speeds of 1,000 or 2,000 r.p.m. The Midget M-851 screw driver and nut setter (lower right) includes a KRA-1 right angle head with 1/4-inch-28 female thread and threaded shank, and is intended primarily for Phillips screws. The tool is provided with speeds of 1,000 or 2,000 r.p.m.

Cut Set-Up Time 75%

WITH

DIRECT READING

RADIUS DRESSER



It's easy! The Perfex Radius Dresser is as simple to set as a "mike." Hardened and ground micrometer screw permits precision setting throughout the full range – from 2" convex to 2" concave. Take reading *directly* from micrometer head – *eliminate* height gauges, "mikes" and errors – *gain* simplicity, accuracy, hours of time. Simple as A B C; set your diamond to Master Setting Block furnished – then operate same as micrometer.

The Perfex Radius Dresser will dress concave radii smaller than .050" – *full 180°*. Dressing head is graduated each 5°, equipped with stop dogs to permit dressing within given arc. One revolution of mike screw moves diamond .025", providing rapid adjustment. It's a *precision* instrument, manufactured by gage makers mindful of tool-makers' requirements. Durable carrying case with Master Setting Gage and provision for our standard diamond tool and attachment for small concave radii.

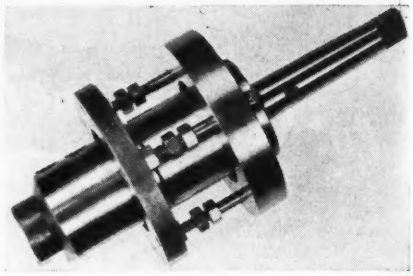
Write for details in our new folder and name of Perfex representative in your industrial center.

See us at A.S.T.E. Show, Booth 104

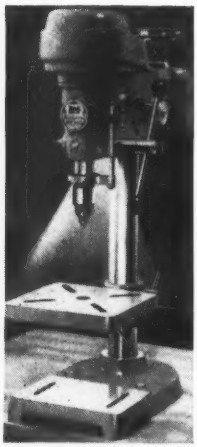
Perfex GAGE AND TOOL CO.

121 AVERY STREET • MT. CLEMENS, MICH.

Weddell Tools, Inc., Rochester 11, N. Y., will exhibit at the A.S.T.E. Show its complete line of inserted blade metal cutting tools and accessories. Included will be the Tri-Bit Super Shear Mill designed for the high production face milling of cylinder blocks, heads, gear cases, and other frail iron castings. Also shown will be many new tools incorporating solid carbide ⅜-inch Tri-Bits, including shell type face mills, small slotting cutters, and many special tools. Booth No. 424.



Booths Nos. 714 and 813 at the A.S.T.E. Show will feature a broad line of hydraulic and pneumatic power and production equipment marketed by the Hannifin Corp., 1101 S. Kilbourn Ave., Chicago 24, Ill. Equipment to be exhibited will include a 25-ton hydraulic straightening press, such as used in the manufacture of crankshafts, camshafts, axles, lathe spindles, gear shafts, and other parts that may be machined, heat treated, and then ground; 5-ton bench type hydraulic press for high speed press-assembly, punching, piercing, and similar work in production lines; sensitive pressure control for hydraulic presses which permits extreme sensitivity in varying the pressure to meet the requirements of the job; 10-ton portable hydraulic riveter for cold or hot riveting work on automobile frames, structural steel, and other shop fabricated work; "Hy-Power" hydraulic pressure generator for powering riveters, punches, shears, and yoke type presses; 1-ton air-operated bench press designed for light stamping, marking, die cutting, and press-fit assembling operations; hydraulic and pneumatic cylinders; "Air Warden" air pressure regulator for use with pneumatic cylinders and air powered equipment; and solenoid operated air control valve for the directional control of the flow of compressed air.



Products to be featured at the A.S.T.E. Show by the South Bend Lathe Works, 386 E. Madison St., South Bend 22, Ind., will include a 7-inch precision bench shaper and 14-inch precision drill press. The company will also exhibit in Booths No. 703 and 707 a complete line of lathes, including 9, 10, 13, 14½, and 16-inch quick-change gear and toolroom models, together with many accessories and tools. The 14-inch precision drill press (illustrated herewith) has a capacity for drilling ½ inch in iron or steel at the center of a 14-inch circle. A built-in light with independent switch provides shielded illumination for the work area. A quick-acting belt tension release lever simplifies changing of spindle speeds and provides for the return of the vertically mounted motor to its original position after each change, thus maintaining the same belt tension for each of the four cone pulley steps. The drill press is available in both bench and floor models.



STAYS CLOSED

At top indexing speeds

At last—here's a die head that's built for easy, positive resetting, yet *cannot open* under rapid indexing.

And the adjustable stop for opening provides accurate length thread. No length adjustment is necessary after grinding the chasers. With this unique design you can thread up close to shoulders, too.

Chasers and blocks are interchangeable, size for size, with styles DR and DS Vers-O-Tool heads. That means you get all the advantages of the famous Vers-O-Tool design—fewer parts, hardened and ground throughout; long-life circular chasers, regrindable through a full 270°; micrometer gage checking for accuracy of grinds and quick diametric adjustment.

The Namco style DBS head is equally adaptable for use with both thread chasers and hollow mill cutters for end-forming and turning operations. Capacities range from .056″ to 1″.

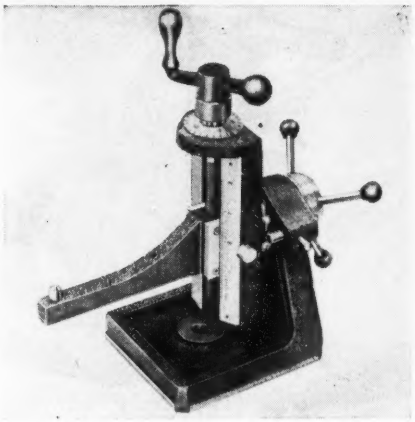
May we quote on your requirements?

The NATIONAL ACME CO.

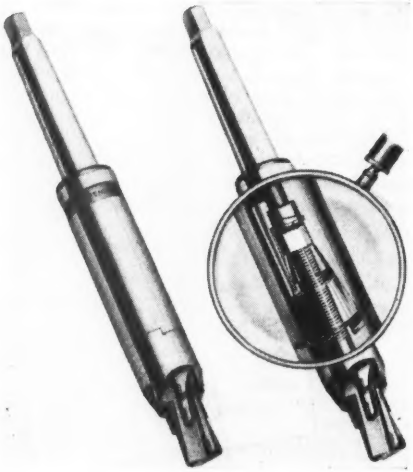
170 EAST 131st STREET • CLEVELAND 8, OHIO

Acme-Gridley Bar and Chucking Automatics: 1-4-6 and 8 Spindle • Hydraulic Thread Rolling Machines • Automatic Threading Dies and Taps • The Chronolog • Limit, Motor Starter and Control Station Switches • Solenoids Centrifuges • Contract Manufacturing

A direct reading radius dresser which is said to operate with the precision and simplicity of a micrometer will be shown in Booth No. 104 at the A.S.T.E. Show by the Perfex Gage and Tool Co., Dept. AM, 124 Avery St., Mt. Clemens, Mich. The dresser features a ground micrometer screw that permits accurate setting throughout the full range of the unit from 2-inch convex to 2-inch concave radii. The dressing head includes 5-deg. graduations and is equipped with stop dogs that permit dressing a given arc. A master setting block is furnished with the dresser, which is supplied in a durable carrying case having space for a standard diamond tool and attachment for dressing small concave radii.



Featured in Booth No. 1612 at the A.S.T.E. Show will be a demonstration of the unusual cutting ability of carbide burs marketed by Pratt & Whitney, Division Niles-Bement-Pond Co., West Hartford, Conn. At a special table where visitors will be protected from chips and sparks by large Lucite panels, the cutting ability of carbide burs will be demonstrated on all types of material, including cast iron, die steel hardened to 65C Rockwell, stainless steel, magnesium, aluminum, bronze, and so on. Also available in this booth will be a complete display of Pratt & Whitney Kellerflex Flexible Shaft Machines, plus all of the attachments and accessories available for same. Included will be equipment capable of delivering handpiece speeds ranging up to 33,000 revolutions per minute.



The Eclipse Counterbore Co., 1600 Bonner Ave., Detroit 20, Mich., will introduce at the A.S.T.E. Show a taper drive of rigid, simple design and featuring quick hand detachability. The drive is said to be ideal for tungsten carbide and high speed steel end cutting tools for single purpose mass production operations. The quickly detachable taper construction is claimed to eliminate the necessity of "drifting out" the cutter from the holder. Booth No. 218.

HEAT TREAT

SMALL PARTS, TOOLS & DIES

In Your Own Plant



- **Install anywhere by simple wire connection. Quiet in operation. No fumes or odors—no ventilating required.**
- **Any intelligent man can operate furnace with automatic temperature control, using established procedures.**
- **Operating cost under 4¢ per hour to hold 1600° F. in Model 3 furnaces, with 2¢ per kw.-hr. rate. Others in proportion.**

NOW YOU CAN heat treat, harden and temper small parts in your own plant . . . *without experienced heat treaters.* Economical to install and use, Cooley Electric Furnaces operate efficiently at high or low heats, and save your large furnace time for work requiring large volume capacity. Here are some profitable uses:

PRODUCTION HEAT TREATING of small parts . . . Small batches . . . Running pilot lots to predetermine mass production techniques . . . Emergency repairs . . . Industrial and laboratory testing . . . Miscellaneous controlled heating jobs.

CHAMBER	8″W 6″H 14″L				10″W 6″H 18″L				8″W 6″H 14″L
FROM COLD	1850° F. in 55-65 min.				1850° F. in 55-65 min.				2000° F. in 2½ hrs.
AMPERES	14.8 at 230 v.				19.6 at 230 v.				20.2 at 230 v.
WATTS	3400				4500				4650
MODEL*	MH-3	VH-3	MK-3	VK-3	MH-4	VH-4	MK-4	VK-4	VK-5
PRICE	160.00	185.00	200.00	225.00	245.00	270.00	285.00	310.00	340.00

* M models complete with hinged door and hearth plate.
V models have counterweighted vertical lift door.
K models include Selective Power Modifier for input control to correct temperature lag.

FORCED CIRCULATION AIR DRAW FURNACES — Write for data.

ACCESSORY EQUIPMENT

Electronic operated Veri-tron indicating and controlling pyrometer, with thermocouple and lead wire..... $143.00
Same in self-contained, enclosed panel including line switch and fuses, with steel stand—completely wired..... 250.00
Steel stand with shelf..... 35.00

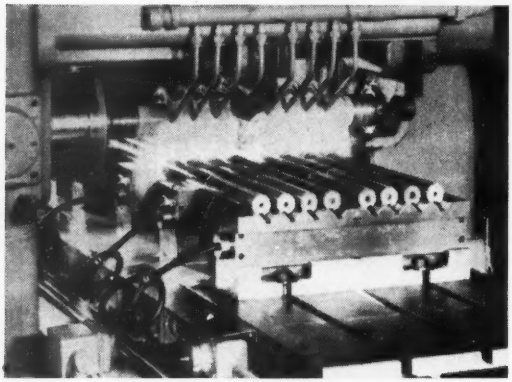
DEALERS AND DISTRIBUTORS WANTED!
Good territories open on this extensive line of self-contained small electric furnaces. Investigate now.

FREE LITERATURE

NEW CATALOG completely describes all models and applications for each. Write today for your copy . . . no obligation.



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Export Manager, 44 Whitehall Street, New York, New York



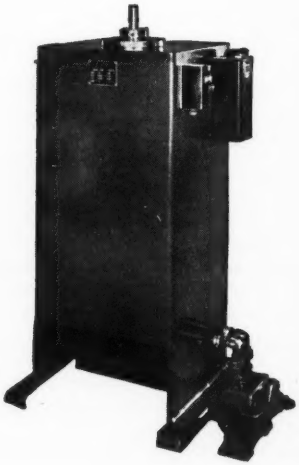
In Booth No. 803 at the A.S.T.E. Show, the Rockford Magnetic Products Co., Inc., 1312 18th Ave., Rockford, Ill., will exhibit its complete line of "Power-Grip" products, including the Power-Grip Viking Chuck, Power-Grip Standard Chuck, Power-Grip Lifting Magnet, Power-Grip Hand Magnet, and Power-Grip Hand Separator. The Power-Grip Viking Chuck is designed with a double-magnetic circuit, with the magnetic poles running the full length of the chuck. It is operated with the regular Power-Grip control and is said to effect a magnetic penetration that makes possible the use of simple, interchangeable fixtures for production milling, grinding, planing, and so on. The accompanying illustration shows Power-Grip Viking Chucks being used to hold several pieces for keyway milling.

———— «» ————

The Wickman-Neven Bench Grinder with steel-bonded diamond wheel, designed especially for sharpening single-point carbide tools, will be exhibited at the A.S.T.E. Show by The Wickman Corp., 15533 Woodrow Wilson Ave., Detroit 3, Mich. Also shown will be a complete line of resinoid and steel-bonded diamond wheels for grinding carbide tools and for cutting off, slotting, and finish grinding carbide and other hard-to-work materials. In addition, Habib tube-type diamond drills for drilling or trepanning glass, quartz, sapphire, ceramics, and other brittle and abrasive materials will be displayed. Booth No. 915.

———— «» ————

Among the speed lathes to be exhibited at the A.S.T.E. Show by The Schauer Machine Co., 2060 Reading Rd., Cincinnati, O., will be the vertical spindle variable speed lathe shown herewith, which is designed for general secondary finishing operations, such as deburring, filing, or polishing, on metal and plastic parts where it is advantageous to revolve the workpiece in a horizontal plane. The lathe is available in a variety of designs—either manually or air-operated—and arranged for various types of holding devices, including standard three-jaw lathe chucks, air-operated chucks, collets, expanding mandrels, or special holding fixtures. Infinitely variable spindle speeds are provided, ranging from a high of 4,800 r.p.m. to a low of 100 r.p.m. in a 6-to-1 ratio when using a single-speed motor and 12-to-1 ratio when using a two-speed motor. In addition to a continuously operating motor, standard features of the lathe include an automatic chuck and brake. Booth No. 622.



Announcing...

the NEW WHYTE

ROLL FEED



Designed and built by specialists to give you maximum production and safety. *Increases up to ten times* the speed of hand feeding, and assures complete accuracy because of exclusive design features.*

WHYTE ROLL FEEDS are more versatile, more dependable, and have greater feed capacities. Easy to install—easy to adjust—easy to operate. Start getting maximum production NOW by installing new completely-automatic WHYTE ROLL FEEDS on all your punch presses.

***7 Outstanding Features**

1. Automatic Brake
2. Hardened and flash Chrome Rolls
3. Roll Friction Clutch (with Carbide wear inserts)
4. Two-Post Mounting
5. Strong Spring Tension
6. Adjustable Stock Guides
7. Both Automatic and Manual Roll Lifts

Single, Dual, Left-to-Right, Right-to-Left, Front-to-Back, Back-to-Front. Special Feeds.

Write Today

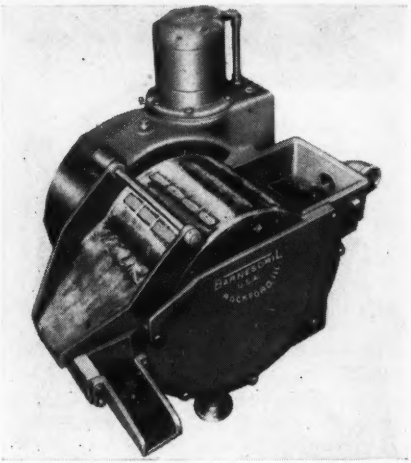
For Illustrated Folder With Complete Specifications.

WHYTE
ENGINEERING CO.
33 LYMAN STREET
SPRINGFIELD 3, MASS.

Also Manufacturers of

Die Feeds • Dial Feeds
Slide Feeds • Pick-Off Attachments
Stock Straighteners
Lamination Dies

BarnesdriL Magnetic-Automatic Coolant Separators, arranged to show their operation under actual conditions on grinding and honing machines, will be exhibited in Booth No. 619 at the A.S.T.E. Show by the Barnes Drill Co., 814 Chestnut St., Rockford, Ill. The design of the separator is such that the coolant is constantly and automatically cleaned and the swarf is permanently removed. In this manner, coolant life is said to be prolonged to the normal structural breakdown, maintenance reduced to a minimum, and available production hours on the grinding or honing machine increased.



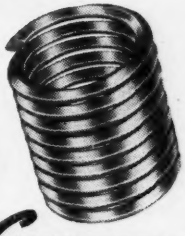
A large and representative display of gages, precision measuring instruments, cutting tools, and contract engineering service work will be exhibited at the A.S.T.E. Show by The Sheffield Corp., Dayton 1, Ohio, and its subsidiaries, the Murchey Machine & Tool Co., Detroit, Mich., and the Threadwell Tap & Die Co., Greenfield, Mass. Sheffield and Murchey products will be shown in Booth No. 830. These include gages, precision measuring instruments, machine tools, dies, fixtures, threading tools and tooling, thread chasers, self-opening die heads, and collapsible taps, as well as engineering and contract manufacturing. A separate exhibit for Threadwell products, which include taps, dies, keyway cutters, and screw plates, will be available in Booth No. 903.



The Nilco Dial Snap Gage illustrated herewith, product of the Nilsson Gage Co., Inc., Poughkeepsie, N. Y., will be exhibited at the A.S.T.E. Show by this firm. The gage features a framework machined from rolled magnesium with angles at 45 degrees to provide maximum rigidity and to minimize dimensional changes caused by variations in temperature fluctuations. The gage also features a vernier type adjusting screw which permits 1/4-inch adjustments to be made in the gaging pin or movable anvil. The adjustment can be locked with the gaging pin still remaining free for checking. Booth No. 1917.

HELI-COIL* SCREW THREAD INSERTS

put your product a step ahead of competition



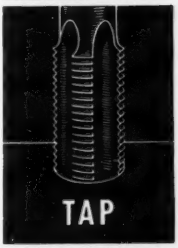
Easy TO INSTALL

A stripped tapped thread is a "pain-in-the-neck" to the user of a mechanical product.

Today you can avoid this problem by using Heli-Coil Screw Thread Inserts. They provide a durable free-running surface for tapped threads, preventing wear, stripping, or seizure. Heli-Coil Inserts are precision-shaped coils of stainless steel or phosphor bronze wire, which fit exactly in tapped threads of all conventional sizes.

Heli-Coil Inserts were widely used during the war on aircraft engines. Now they are also used extensively by manufacturers of automobiles, appliances, industrial machinery, and other products requiring durable threaded fastenings. Engineering representatives are available to help you solve your threaded fastening problems with Heli-Coil Inserts.







A TYPICAL HELI-COIL APPLICATION



In this Thor Valve Seat Grinder, manufactured by the Independent Pneumatic Tool Company, eight phosphor bronze Heli-Coil inserts are used to strengthen the tapped threads in the magnesium field case. They provide a durable thread surface that resists the wear-and-tear of every-day shop use.

● Two other important industrial uses are in salvage and maintenance, where Heli-Coil Inserts effect a quick and complete repair of damaged tapped threads.

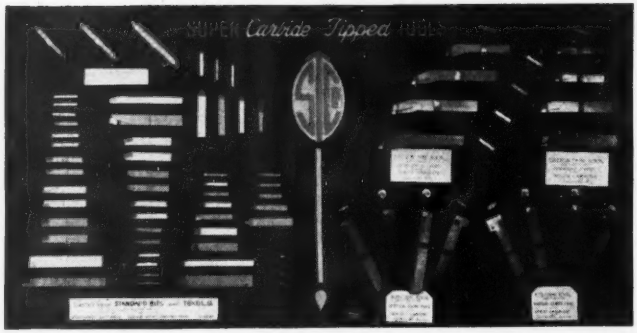
Trademark

HELI-COIL CORPORATION

Formerly AIRCRAFT SCREW PRODUCTS COMPANY, Inc.

47-23 G 35th STREET, LONG ISLAND CITY 1, N. Y.

*Reg. U.S. Pat. Off.



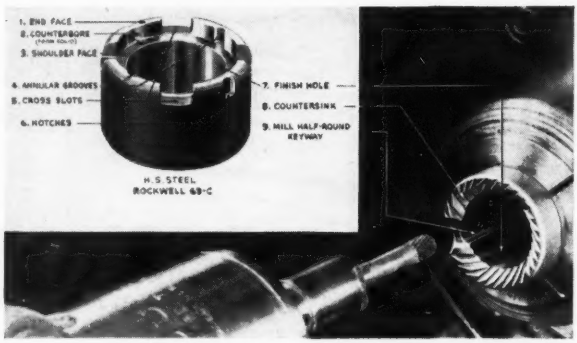
The Super Tool Co., 21650 Hoover Rd., Detroit 13, Mich., will display its standard line of carbide tools, as well as a number of special cutters, at the A.S.T.E. Show. Featured will be the new ejector type tools which consist of straight and offset horizontal styles as well as verticals with round, square, triangular, and rectangular inserts. Booth No. 1013.

———— «» ————

The B. C. Ames Co., 131 Lexington St., Waltham, Mass., will exhibit micrometer dial gages and micrometer dial indicators in Booth No. 308 at the A.S.T.E. Show. The company will feature a new series of thickness measures and pocket gages, a line of long range micrometer dial indicators, and a new bench gage, as well as significant improvements on existing measuring devices.

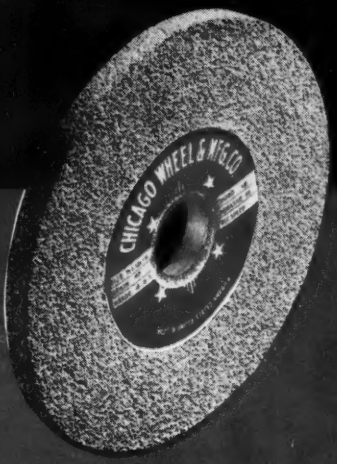
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Improved Micro-Mills made with their forward ends relieved so as to allow for the finishing of the bottoms of blind holes or the facing of shoulders and ends of parts will be exhibited in Booth No. 1006 at the A.S.T.E. Show by Severance Tool Industries Inc., 724 Iowa St., Saginaw, Mich. The actual production of hardened parts with these cutters will be demonstrated. Also displayed will be midget mills, junior mills, lab mills, chatterless countersinks, ball seat reamers, taper reamers, inside and outside deburring cutters, tube deburring cutters, ground carbide hand files, and ground carbide die machine files. In addition to finishing blind holes, the Micro-Mills are said to be especially useful for post-hardening changes and salvaging operations, as well as for the planetary milling of recesses, counterbores, and countersinks. In fixed or indexed work positions, the Micro-Mills can be used to mill half-round keyways, annular grooves, cross slots, and notches. They are available in 10 standard sizes, each featuring an integral carbide shank of 1/8, 3/16, or 1/4-inch diameter.



Silver Bond

flashing new addition to a famous line
CHICAGO WHEEL & MFG. CO.
Headquarters for
MOUNTED WHEELS and SMALL GRINDING WHEELS



• Here's a sensational grinding wheel . . . it's the startling, shining SILVER BOND, engineered for super-swift performance, unprecedented efficiency in grinding and finishing; kept constantly FRESH by a protective metallic film! Try it yourself! Stronger than words is the proof you will see for yourself, in your own plant, that the new SILVER BOND is the wheel you can't afford to pass by, the wheel that solves your grinding problems. Tell us the kind of job you have. We'll send a test SILVER BOND promptly.

Send for Catalog of Chicago grinding wheels, mounted wheels and tools.

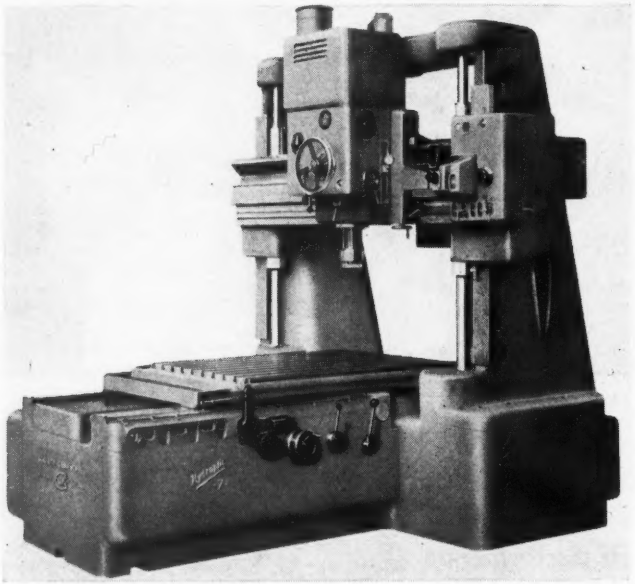
MOUNTED WHEELS
the largest assortment available.
- **GRINDING WHEELS**
- **HANDEE, Tool of 1001 Uses**
- **HI-POWER GRINDER**
- **The new HANDEE "44"**

CHICAGO WHEEL & MFG. CO., 1101 Monroe St., Dept. MM, Chicago 7, Illinois.

☐ **Send Test Wheel for use on**_____
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The Cosa Corp., Chrysler Bldg., 405 Lexington Ave., New York 17, N. Y., will exhibit in Booth No. 1640 at the A.S.T.E. Show a variety of Swiss high precision machine tools and measuring instruments, including a jig boring and milling machine, optical measuring equipment, miscellaneous measuring instruments, profile and form tool grinding machine, snap gage and lapping machine, automatic screw machine, two and three-dimensional engraving machines, cutter grinding machine, tungsten carbide tool grinding machine, internal micrometers, gear grinding machine, gear hobbers, and nut tapping machines. Featured will be the SIP Hydroptic 7 Jig Boring and Milling Machine illustrated herewith, which has a table working capacity of 61½ x 40½ inches. The machine includes a built-in optical measuring system consisting of standard scales which are read by means of microscopes. The optical measuring system is said to be unaffected by mechanical stresses. The guaranteed accuracy of all table settings is 0.0002 inch. The machine is provided with a wide range of speeds and feeds and includes multiple remote controls.

The exhibit of Kennametal Inc., Latrobe, Pa., in Booth No. 1505 at the A.S.T.E. Show will feature mechanically-held tools of many types. On display will be heavy and medium-duty turning tools with flat Kennametal clamped-in tips; "Kennamatic" tools having vertically positioned, clamped-in, and indexable Kennametal inserts (round, square and triangular); roll turning tools with solid Kennametal blades clamped-in for roughing, finishing, and fillet forming on cast iron mill rolls; planer tools of various types having clamped-in Kennametal tips for work on cast iron; various types of Kennamills (milling cutters with wedged-in blades of solid Kennametal); and a new line of mechanically-held tools shown as "Kendex." With the latter tools, flat indexable tips are held to the shanks by countersink screws and prevented from turning by carbide particles imbedded on the underside. The tools are available in shank sizes of ½, ⅝, ¾, and 1 inch square with round, square, triangular, and pentagonal Kennametal tips. Standard brazed-on tools and wear-resistant parts will also be on display.

cut production costs with a SHOPLIFTER

- **Light, Compact**
- **Easily Moved About**
- **One-Man Operated**
- **Wide Range in Application**
- **Saves Production Time**

  in handling dies and heavy fixtures; stacking barrels, boxes, etc.; loading and unloading trucks



Specifications

Type—D
Capacity—500 lbs.
Overall height—72"
Platform lift—54" above floor level, lowers to within 5" of floor
Baseframe—24" wide x 33" long
Platform—24" x 24", steel plate
Entire frame of machine of structural steel, electrically arc welded throughout
Basewheels—4" diameter, iron wheels
Crank up and down hoist unit
Two swivel casters and two stationary wheels with push bar furnished
Painted olive green finish
Weight—250 lbs. (approx.)

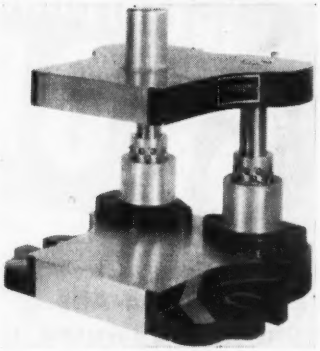
Heavier capacities up to 5,000 lbs. also available. Write for details.

Prompt Delivery

Price $157.50. ***Full Freight Allowed... Foot Operated Floor Lock, $10.00 Extra***

2637 West Van Buren Street, Chicago 12, Illinois

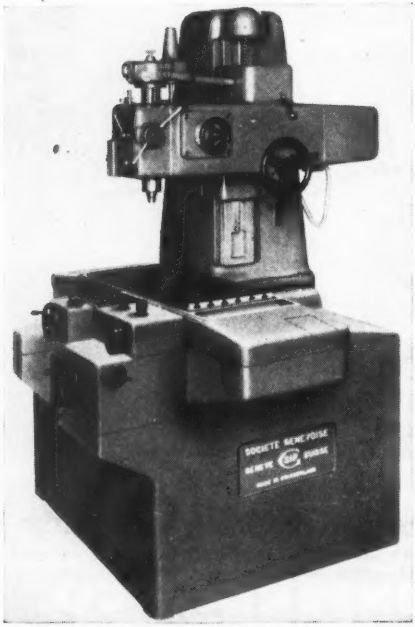
ECONOMY ENGINEERING CO.



The Evans Reamer and Machine Co., New Lexington, Ohio, will exhibit the "Acrolex" Die Set illustrated herewith in Booth No. 1419 at the A.S.T.E. Show. The die set features preloaded anti-friction ball bearings between the leader pins and bushings to prevent lateral motion and is designed to open and close freely and easily by hand. Also exhibited will be the Evans Mobilcrane, a one-ton hydraulically operated portable floor crane which is said to enable one operator to move a load of one ton, raising and lowering the load with one hand while positioning the load with the other hand. In addition, the Evans exhibit will contain dual-spiral adjustable reamers, including chucking reamers, alignment reamers, stub reamers, machine and hand reamers, and special reamers. Evans Pressurematic Presses in electric and hydraulic models of 20, 40, and 60-ton capacities will also be shown.

———— «» ————

A line of six newly designed portable pneumatic tools will be displayed in Booth No. 804 at the A.S.T.E. Show by the Buckeye Tools Corp., Dayton, Ohio. Designated as "Stream Power," the line includes four horizontal grinders, a vertical grinder, and a nibbler.



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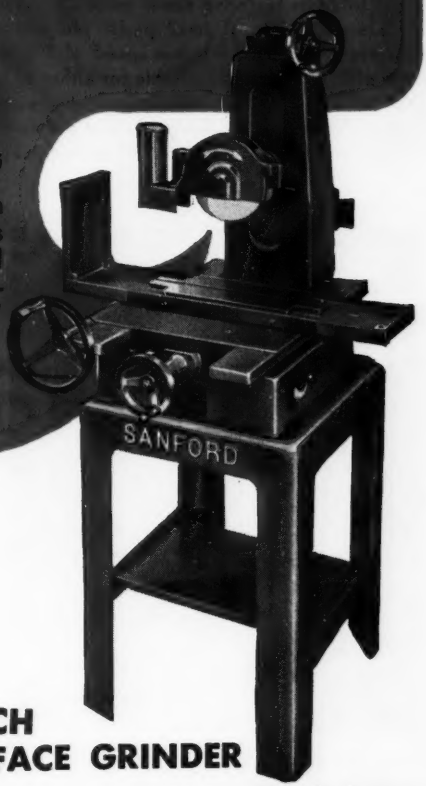
The SIP Type MP-24 Jig Borer illustrated herewith will be among the Swiss high precision machine tools and measuring instruments exhibited in Booth No. 1640 at the A.S.T.E. Show by the Cosa Corp., Chrysler Bldg., 405 Lexington Ave., New York 17, N. Y. The machine has a table working surface of 27½ x 12½ inches and incorporates an optical measuring system. The guaranteed accuracy for all table settings is 0.0001 inch, which is provided by a patented design that includes built-in standard scales which are read by means of micrometer microscopes. In addition to jig boring operations, the machine, it is claimed, can be used in performing light milling work without danger of injuring the delicate mechanism.

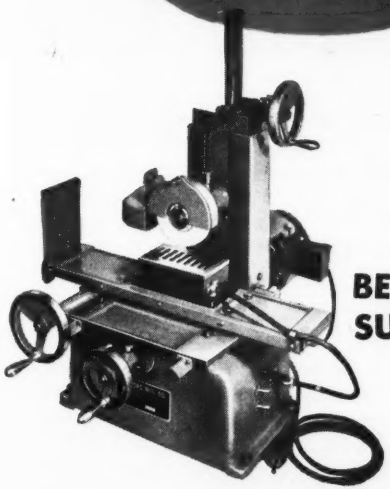
SANFORD

SURFACE GRINDERS

Model MG

Handles many odd size tool room and production jobs, due to its capacity of 8" x 12" x 12". Actual movements — Transverse 8¾" — Longitudinal 13" — Vertical 12" (under 7" wheel).





BENCH SURFACE GRINDER

Model SG

A sensitive, highly accurate machine specially designed "for the job that fits in your palm." Actual movements — Transverse 4" — Longitudinal 8"—Vertical 6" (under 4" wheel).

WRITE FOR COMPLETE DETAILS

SANFORD MANUFACTURING CO.
1021 COMMERCE AVENUE
UNION, NEW JERSEY

Preview of A.S.T.E. Industrial Exposition

An 8-ton pelleting Multipress for ceramic, plastic, and other granular or powdered material will be among the products displayed in Booth No. 1207 at the A.S.T.E. Show by The Denison Engineering Co., 1153 Dublin Rd., Columbus 16, Ohio. The unit is completely automatic in pressing, charging, and ejecting actions. Other products to be exhibited will include Multipress Midgets featuring either manual or automatic control and adaptable to the processing of a wide variety of small parts; Multipress equipped with HydrOILic index table; fast-traverse Multipress with ram speed of 535 inches per minute; Multipress Midget equipped with dial feed table, adjustable for either 8, 12, or 24 indexes per complete rotation; variable and fixed volume 5,000 p.s.i. hydraulic pumps; 1/4, 3/4, and 1 1/2-inch relief sequence and unloading valves, threaded body and subplate mounted types; and 1/4, 3/4, and 1 1/2-inch 4-way directional controls, threaded body and subplate mounted types.

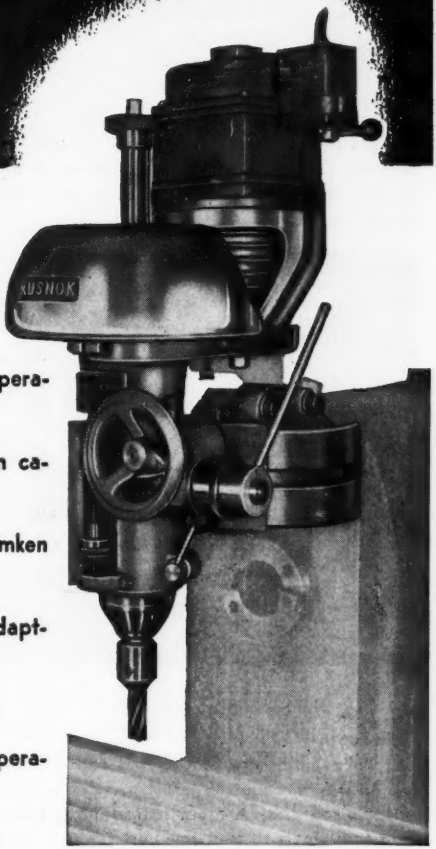


An expanding arbor for internal gripping that is said to greatly increase the utility of 1, 1 1/2 and 2-inch Levermatic collet chucks will be exhibited in Booth No. 927 at the A.S.T.E. Show by the Porst Brothers Manufacturing Co., 259 N. California Ave., Chicago 12, Ill. Available in diameters from 5/16 to 4 5/8 inches, the arbor is made in four steps or sizes of average length and of long-wearing heat-treated alloy steel for each chuck model. The Levermatic chuck and arbor unit is said to lend itself to many applications such as cylindrical grinding, milling, drilling, surfacing grinding, and so on. The complete Levermatic is designed for mounting on the lathe spindle nose where it rotates and, with the aid of a hand-operated shifting lever, can be actuated without stopping the spindle and without heating.

In Booths No. 314 and 413 at the A.S.T.E. Show, the Federal Products Corp., 1144 Eddy St., Providence, R. I., will exhibit Sortron-Matic Automatic Sorting by means of electronic gages. A complete section of the display will be devoted to electronic and automatic gaging. There will also be a complete demonstrating model of a hole sorting gage and outside diameter sorting gage. Another automatic gage to be shown is the Federal-Electricator which can be applied to automatically control machine feeds and also operate signal "go and no-go" lights and "go and no-go" sound signals. The dial indicator section will include a complete display of dial indicator type gages, many types of dial indicators together with accessories, special indicators of various types, and the Federal Testmaster. The Mikemaster, an indicating micrometer which is designed to read in 0.0001 inch, indicating snap gages, indicating snap micrometer gages, various types of hole gages, caliper gages, depth gages, thickness gages, comparators, and many other miscellaneous types of dial indicator gages will be on display.

MEMO

Tom— I think the RUSNOK has every feature we need for our milling requirements. Let's write for their free illustrated circular. J.D.P.



- Precision built for the heavier duty operations
- Heavy duty — easily handles maximum capacity—1/16"—¾" end mills
- Six speeds—six splined pulley drive—timken tapered roller bearings
- Brackets to fit most milling machines—adaptable to many other types of machines
- Utilizes an unlimited variety of cutters
- For vertical, horizontal and angular operations
- 4" quill travel—#9 B & S spindle taper

Write for illustrated circular

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HEAVY DUTY **RUSNOK** ATTACHMENT

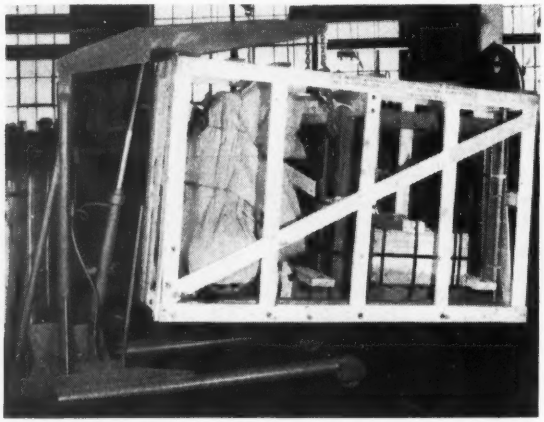
MILLING • DRILLING • BORING

RUSNOK TOOL WORKS • 4840 W. NORTH AVENUE • CHICAGO 39, ILL.

Preview of A.S.T.E. Industrial Exposition

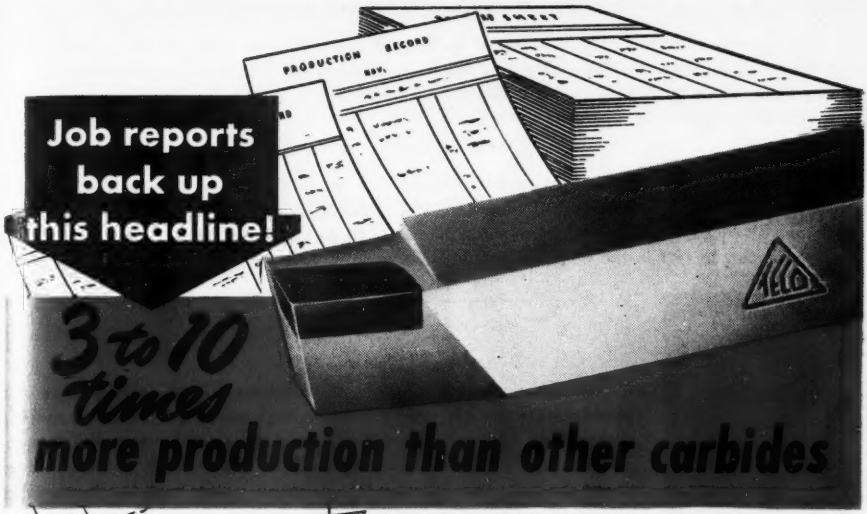
Aluminum and standard chucks, centering machines, and gem cutting machines will be exhibited at the A.S.T.E. Show by the Whiton Machine Co., New London, Conn. The newly developed aluminum body chuck will be featured, together with a wide range of standard chucks. Made of a special analysis aluminum known as "Whit-aloy," the new type chuck is claimed to provide the strength of steel and the wearing qualities of cast iron with the lightness of aluminum. It is designed to start and stop quickly. Booth No. 1114.

Highlight of the exhibit to be sponsored by Lempco Products, Inc., 4756 Dunham Rd., Bedford, Ohio, in Booth No. 922 at the A.S.T.E. Show will be an anti-friction die set, known as the "Accurate," which features preloaded ball bearing guide pin bushings and simplified lubrication and is said to be ideal for most production work. The Lempco display also will feature a one-ton portable hydraulic crane (illustrated herewith), designated as the Mobilcrane, which is claimed to be particularly useful for loading and unloading trucks, moving castings, motors, crates, and so on. The unit has a maximum lifting range of from 3 feet to 9 feet 7 inches (3 feet to 12 feet 7 inches with boom extension). Lempco Pressurematic Presses in electric and hydraulic models of 20, 40, and 60-ton capacities will also be on dispay, as well as Lempco Dual-Spiral Reamers.



In Booth No. 304, at the A.S.T.E. Show, the Allegheny Ludlum Steel Corp., Pittsburgh 22, Pa., will exhibit virtually all types and grades of tool and die materials from the old Pompton all the way through the latest wrinkles in cemented carbide alloys. Included will be examples of tools and dies. A prominent feature of the exhibit will be the theme of combining carbides with tool steels so that the best features of each will complement the function of the other. Other specialty steels also will be in evidence.

Among the products to be exhibited in Booth No. 2026 at the A.S.T.E. Show by the Norton Co., Worcester 6, Mass., will be 32 Alundum Grinding Wheels, including their use on a Norton surface grinder. The exhibit will feature an extensive display of the 32 Alundum wheels in a wide variety of sizes and shapes, including large sizes for cylindrical and centerless grinding. Of special interest will be the showing of the new Norton "Norflex" cutting-off wheel which will be in actual operation on a Tabor machine cutting gates and risers from non-ferrous castings. An additional feature of the Norton exhibit will be a preview of the new Norton surface plate, as well as a general display of refractory products and Norbide gages of various types.



PRODUCTION DATA

Here's another report

Part: Strainer Body
Material: Cast Iron
Machine: Gisholt
Operation: Facing (towards center)
Outside Dia. of Cut: 9"
Inside Dia. of Cut: 4.250"
Depth of Cut: .150" average
Feed: .020"
Speed: 425 f.p.m.
Life of TECO Tool: 18 hours
(per grind) operation
Best previous carbide: 3 hours
operation
TECO Grade A-1 used

• More pieces between grinds • More grinds per tool • Less down time • Lower tool cost

OUR FILES are growing daily with reports from plants who are getting from 3 to 10 times more pieces per tool, since switching from other carbides to Improved TECO Cemented Carbide. These reports cover turning, boring and facing operations on many types of high-production jobs.

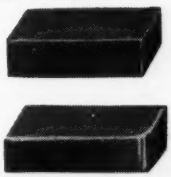
The case at the left is typical of the increases being made with Improved TECO. Try it yourself, on any established carbide job. You'll discover that it removes more metal—holds cutting edges longer—has high resistance to breakage—operates at higher feeds and speeds—gives a better finish.

Order a set of Improved TECO Tools (or blanks) to tool up a machine and verify these facts in your plant. Send details of your job for proper recommendation.

TUNGSTEN ELECTRIC CORP. 562 **39th ST., UNION CITY, N. J.**
Branch Office: 403 Western Reserve Bldg., Cleveland 13, Ohio
Representatives: Indianapolis, Ind., Detroit, Mich.

Improved
TECO
CEMENTED CARBIDE

Manufacturers of
TECO CARBIDE BLANKS and TOOLS



All standard sizes and styles. When ordering any carbide tools specify "Teco —no substitute."

Manufacturers of Tungsten Carbide—from ore to finished material—for over a quarter century.

Preview of A.S.T.E. Industrial Exposition

The recently acquired Hannifin line of air chucks and air chuck cylinders will be exhibited at the A.S.T.E. Show by the Union Manufacturing Co., New Britain, Conn. Control valves, regulators, filters, and required accessories will be shown in connection with the chucks and air cylinders. Booth No. 1621.

The "Masteraser" Electric Erasing Machine will be demonstrated at the A.S.T.E. Show by The Frederick Post Co., Box 803, Chicago 90, Ill. The sturdily constructed drafting aid, which weighs 16 ounces, is powered by an a.c. or d.c. 110-115-volt air-cooled motor, and is designed and balanced to rest in the hand as lightly as a pencil.



The Charles L. Jarvis Co., Middletown, Conn., will display and demonstrate flexible shaft machines, high speed and tungsten carbide rotary files, "Tecni-Taps" and dies, and the new "Torqomatic" torque-driven tapper (illustrated herewith) at the A.S.T.E. Show. Said to meet the need for a universally adaptable power tool, the Torqomatic, which is available in three sizes, is described as ultra-sensitive and can be used in tapping all types of materials from soap to copper or chrome-steel without any appreciable increase of finger-tip pressure required to operate an ordinary drill press. The unit can be furnished to fit any drill press or tapping machine. Booth Nos. 815 and 817.

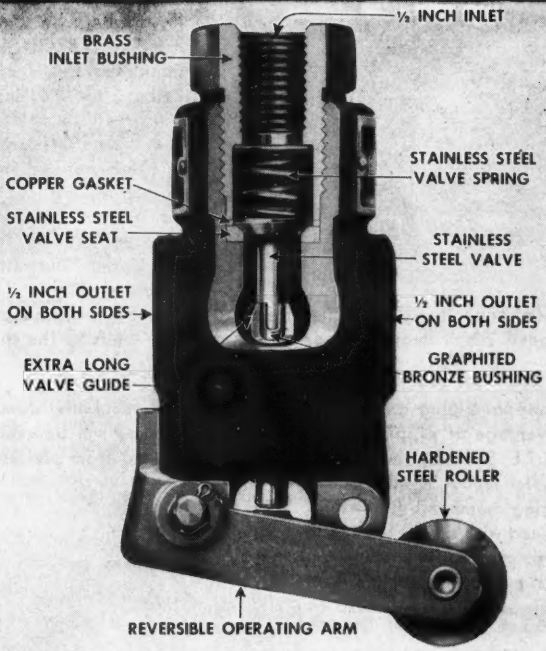
Booth No. 1516 at the A.S.T.E. Show will feature the following products of the Miller Motor Co., 4027 N. Kedzie Ave., Chicago 18, Ill.: Saf-T air hoist; heat-proofed air and hydraulic cylinders; air-hydraulic cylinders; B2 booster; B4 Air Miser dual pressure booster; Series C counter-balance cylinder; 200 p.s.i. air cylinder; Series H high pressure hydraulic cylinder; and Series LH low pressure hydraulic cylinder.

Sheet metal dies employing Carboloy cemented carbide and some of the products being made with such dies will be featured by the Carboloy Co., Inc., 11143 E. 8 Mile Rd., Detroit 32, Mich., in Booth No. 330 at the A.S.T.E. Show. Other products to be exhibited will include Carboloy tools and blanks and specialty products such as wheel dressers, masonry drills, and carbide-tipped lathe centers. Applications of Carboloy cemented carbide to reduce wear in mechanical products, and so on, will also be demonstrated.

The Bokum Tool Co., 14775 Wildemere Ave., Detroit 21, Mich., will exhibit the following items in Booth No. 126 at the A.S.T.E. Show: improved boring, bottoming, and internal threading tools; boring and threading toolholders with variable vertical adjustment to accommodate Bokum internal boring tools from sizes 4 to 12 with shank diameters from ½ to 1½ inches; a line of outside turning tools possessing the same characteristic features found in Bokum internal tools; and solid carbide boring tools.

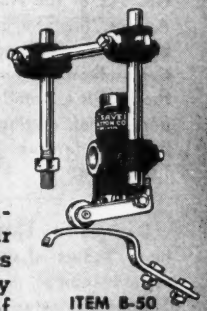
INCREASE MACHINE TOOL EFFICIENCY wit

Palmer-Shile AIR SAVER Leak Proof AIR VALVE



A real precision-built, leak-proof air valve that completely harnesses air power and assures split-second air control at all times. The easy-to-install Air Saver mounts in any position—operates at any angle—unaffected by vibration—provides ample air volume for operation of single or multiple jets. A natural where air is used for cleaning, drying, cooling, positioning or ejecting. Especially recommended around punch presses, die casting machinery, drill presses—and in reaming, broaching and other operations. *Immediate Delivery.*

Item B-100 *(Valve Alone)* $10.00



ITEM B-50

Complete Assembly includes Valve, Mounting Rods, Operating Cam.

$12.50

Palmer-Shile Co.

16022 FULLERTON AVE. • DETROIT 27, MICH.

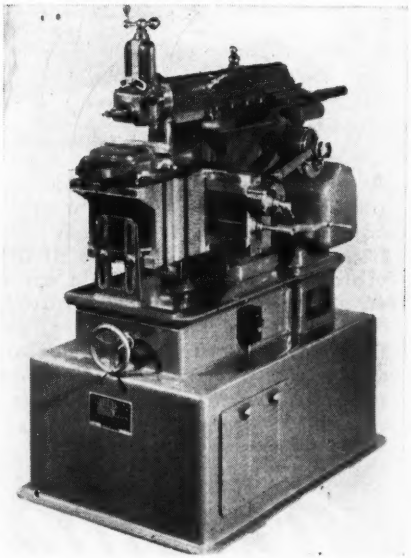

"TRBS-56"

The feasibil.ty of using a number of small, light, handy production tools for work often assigned to unnecessarily heavy, complex equipment will be demonstrated in Booth No. 935 at the A.S.T.E. Show by the Sheldon Machine Co., Inc., 4258 N. Knox Ave., Chicago 41, Ill. Tools to be shown include the Sheldon TRBS-56 Toolroom Precision Lathe; L-44 Toolroom Precision Lathe; S-56P-S 11-inch Turret Lathe which, with a spindle nose collet, is designed to handle bar stock up to 1⅜ inches in diameter; Sheldon-Vernon Milling Machine; and Sheldon-Vernon 12-Inch Shaper. The Sheldon TRBS-56 Toolroom Precision Lathe (illustrated herewith) is provided with a 11¼-inch swing and has a 1-inch collet capacity. It is supplied mounted on a heavy well-ribbed metal cabinet which houses a 4-speed V-belt underneath drive with double V-belts to the spindle.

———— «» ————

A metal tipped sapphire plug gage which is said to resist accidental damage while preserving the full advantage of sapphire's extreme wear resistance will be exhibited in Booth No. 912 at the A.S.T.E. Show by the Sapphire Products Division, Elgin National Watch Co., Aurora, Ill. The metal leader is metallically bonded to the gaging member by an exclusive method. Combined with a flexible handle, the tool is claimed to provide for a maximum number of gagings per day with minimum operator fatigue. Sizes range from 0.020 to 1.000 inch.

———— «» ————



Designed to fill the gap between the large, heavy industrial shapers and the small bench type machines, the Sheldon-Vernon 12-Inch Shaper illustrated herewith will be among the machine tools exhibited in Booth No. 935 at the A.S.T.E. Show by the Sheldon Machine Co., Inc., 4258 N. Knox Ave., Chicago 41, Ill. The streamline pedestal of the machine fully encloses a variable speed motor drive which provides speeds of from 12 to 180 strokes per minute at the turn of a handwheel. The machine is provided with automatic cross feeds in both directions of from 0.0025 to 0.0175 inch, and is furnished with a swivel table and swivel vise as standard equipment.

INTERESTED IN A 300% INCREASE IN STAMPING PRODUCTION USING YOUR PRESENT PRESSES?



Photo courtesy of Federal Tool Corp., Chicago, Ill. Designers and builders of 9 Station Progressive Dies

THIS IS NO FAIRY TALE. Dickerman Die Feeds are actually increasing production 300% or more in many shops. They will do the same for you, used on your present punch presses.

IN ADDITION, they reduce operator hours 80 to 90 per cent, due to their accuracy, reliability, versatility. They increase die life through elimination of costly jams and crack-ups—can be attached to any Press.

THESE FIGURES ARE FACTS, so why look further? Replace worn punch press feeds NOW with the new improved Dickerman Die Feeds. Send for free illustrated catalog TODAY.

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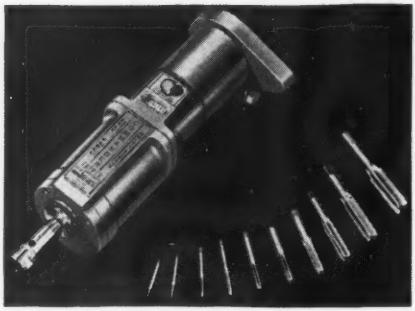
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Syracuse, N. Y.
Syracuse 5-2632 — 5-2639

Rudel Machinery Co., Ltd. Toronto, Canada Waverly 2688



The Commander Manufacturing Co., 4224 W. Kinzie St., Chicago 24, Ill., will exhibit and demonstrate in Booth No. 917 at the A.S.T.E. Show its recently announced tapping head which is designed to fit practically any drill press and is said to handle taps from No. 0 to ¾ inch. The tapper employs a spring clutch drive and adjustable torque control which are claimed to provide for extreme sensitivity, together with a wide range of adaptability. The unit is said to be ideally suited for cycle tapping and O.D. threading as well as routine machine tapping. Accurate blind hole tapping is claimed to be accomplished with ease and without damage to taps and equipment due to the Multi-Torque control. The spring clutch drive is said to eliminate slippage and wear caused by misadjustment and misuse. In addition, the spring clutch drive is said to be impervious to oil, grease, moisture, weather, and so on, with the clutch being readily engaged and disengaged with a very slight force.

———— «» ————

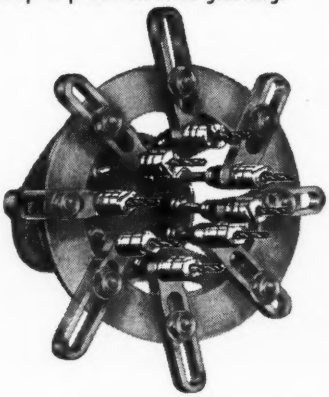
An interesting tooling idea contest will be announced in Booth No. 111 at the A.S.T.E. Show by the Detroit Stamping Co., 349 Midland Ave., Detroit 3, Mich., which will also display the complete line of De-Sta-Co products. Radios and cash prizes are to be awarded to tool engineers for the most interesting use of toggle clamps and entry blanks will be available at the booth. On display will be the entire series of De-Sta-Co toggle clamps applied to simple fixtures, all in operation, together with stampings representative of the company's production, several blower housings, refrigerator "flapper" valves, shims, shim stock, and arbor spacers.

———— «» ————

The J & S Tool Co., East Orange, N. J., will occupy Booth No. 426 at the A.S.T.E. Show in which a full line of precision wheel dressers, including both the Fluidmotion and the Form-Master types, will be exhibited. The company will introduce and show its new mounted wheels with patented threaded shanks and adapters. Many interesting form tools will also be exhibited to illustrate the unusual versatility of the J & S shop in precision form grinding.

———— «» ————

In Booth No. 917 at the A.S.T.E. Show, the Commander Manufacutring Co., 4224 W. Kenzie St., Chicago 24, Ill., will display its "Multi-Drill" Adjustable Drill Head which, with the addition of optional single size spindles, is said to increase the productive drilling capacity of single spindle drill presses. According to the manufacturer, the spindles increase the drill size capacity of the Multi-Drill without decreasing the center-to-center capacity of the unit. The single spindles are available for both the No. 500 six-spindle model and No. 900 eight-spindle model.



RAPID WORK . . . QUICK CHANGE



with Continental Counterbores . . .

You can reduce your tool cost, improve accuracy, and increase production with the Continental complete line of standard interchangeable cutting tools. Cutters have a balanced, indestructible drive—originated by Continental—that will not stick, will not break, and is hand detachable.



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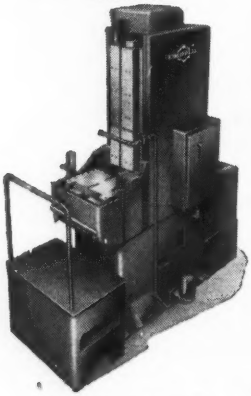
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A NEW LINE OF 10 AND 5 TON

SINGLE RAM PULL-DOWN and PULL-UP

BROACHING MACHINES

Illustrated is the new 10 ton Single Ram surface broaching machine.



For further information, ask for the current issue of Broaching News (Vol. 9, No. 3).

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HIGHER OUTPUT— greater rigidity —higher return speeds.
New hydraulic system layout.
New cooling system for higher output rates.

EASIER MAINTENANCE—
Accessories can be serviced with the machine running.
Automatic lubrication with quick priming pump.
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Increased work accuracy—hardened and ground box type gibs.
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For most economical production metal-sawing, pick the long-life GRIFFIN SPECIAL ALLOY. Molybdenum high speed steel. Machine and hand frame sizes.

To cut stainless, chrome, nickel and all other tough alloys, pick the GRIFFIN HIGH SPEED STEEL. 18-4-1 tungsten high speed steel. Machine and hand frame size.

For any hand-frame use, pick the tough, all-purpose NEW GRIFFIN. Flexible as a soft-back, durable as an all-hard.

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For precision contour cutting, pick GRIFFIN BAND SAWS. Four types for metal-cutting and wood-cutting.

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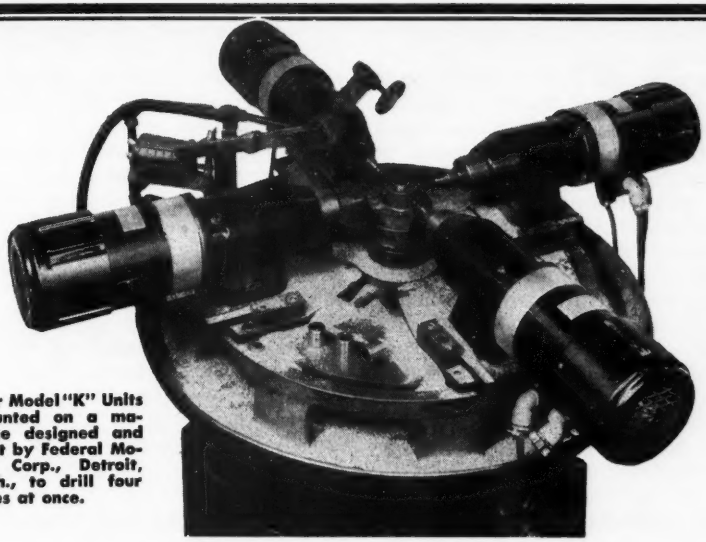
Made by G. W. GRIFFIN CO., Franklin, N. H., Hack and Coping Saw Blade Specialists since 1880

The House of Human Relations

THE drawing presented here illustrates **The House of Human Relations** as conceived by Dillard E. Bird, founder and President of Dillard E. Bird Associates, Consultants to Management, Cincinnati, Ohio. It is a feature of a new brochure issued by that firm.

Mr. Bird explains that **The House of Human Relations** is an architectural





Four Model "K" Units mounted on a machine designed and built by Federal Mogul Corp., Detroit, Mich., to drill four holes at once.

How to Reduce Labor Costs!

Users of Govro-Nelson Automatic Drilling Units are our authority for the somewhat startling statement that multiple drilling with our units has usually resulted in stepping up the production rate from 4 to 10 times, with a corresponding decrease in labor costs.

For example, on one Govro-Nelson installation, the present output of one operator is greater than the former output of three. Send for literature showing the possibilities of Govro-Nelson Units from the standpoint of reducing labor costs.

SEE US AT THE SHOW!
BOOTH No. 628

WRITE FOR *Literature*

GOVRO-NELSON CO.
Machinists of Precision Parts for 25 Years
1933 Antoinette, Detroit 8, Mich.

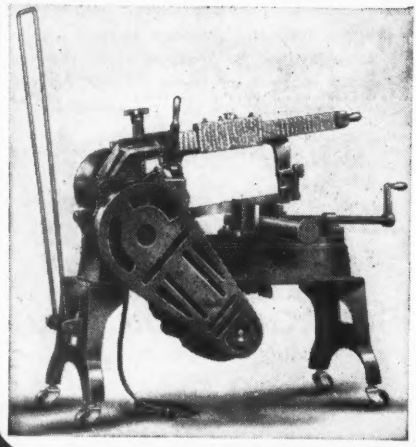
Automatic **DRILLING UNIT**

symbolism of the interrelationships of human relations in business and industry. Human relations to be effective must be planned. They must be built on the solid rock of **Sound Organization** and have as a cornerstone **Sound Management. Personnel Research** is the foundation on which an effective human relations program must be built. **Employee Attitude Surveys** and **Exit Interviews** are two important components of **Personnel Research** and **Personnel Records** furnish its primary source material.

The sequential steps of a systematic and scientific **Employment Procedure** lead the new employee to the entrance of the structure. The door which opens the way to job opportunity is **Training.** As the worker passes through the open door, he passes under the keystone of **Opportunity** which is supported on the one side by **Attitude, Interest, Effort,** and **Skill,** those qualities which the employee must bring to the job; on the other side are **Financial Reward, Security, Recognition,** and **Personal Satisfaction,** those rewards yielded to the employee for adequate performance on the job. The entryway is capped, and opportunity assured, by **Human Minded Management.** The entryway, **Public Relations,** provides a medium for contact between the internal organization and the outside community; the entryway is faced with Personnel Procedures which record the entrance of the new employee and follow his movements in **The House of Human Relations.**

The House of Human Relations is built, as are all buildings, from the ground upward. The activities concerned with payments to employees are the stones laid upon the foundation and built up into an integrated structure of **Wage and Salary Administration.** The windows of **Employee Communications** admit the light of information and knowledge into the struc-

SAWMASTER HACK SAW



LOW PRICED
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READY TO WORK
Angle Cutting Vise
STURDY
ECONOMICAL

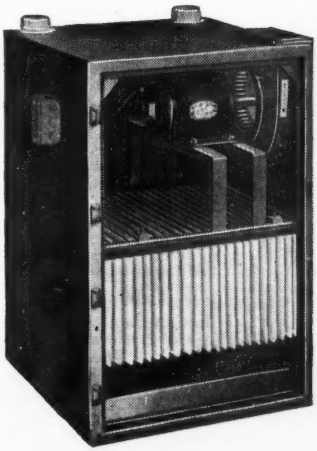
Write for Bulletin No. 300

MILLER-KNUTH MFG. CO. OMAHA, NEB.



Keep your eye on production figures by eliminating abrasive dusts with

TORIT DUST COLLECTORS



TORIT Dust Collectors range in size from ⅓ HP to 3 HP. Completely self-contained they are designed to filter and recirculate dust laden air from single, or compact groups of cut-off, polishing and grinding machines. They require no extensive piping, and their compact design permits fitting into crowded production layouts.

TORIT Dust Collectors are economical. Compactness reduces power requirements and they turn on and off with the machines. They are easy to clean and ruggedly built for long life. For details and the latest TORIT catalog write:

TORIT MANUFACTURING CO.

296 Walnut Street St. Paul 2, Minn.

ture. The upper wall is constructed of a full program of **Services to Employees** developed to fit the needs of each particular situation. **Wage and Salary Administration, Employee Communications,** and **Employee Services** are backed, in all cases in which employees have organized representation, by sound and fair **Labor Relations. Labor Relations** are important in these cases and yet are subordinate to and placed behind the more basic programs contributing to the structure.

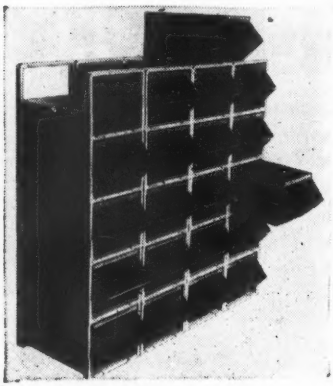
The whole structure is covered and shielded by a roof constructed of well designed and executed programs for the development of personnel through **Education, Training** and **Management Participation Systems.**

One of the twin chimneys symbolizes health-giving warmth and the **Health** functions indispensable to human relations. The other chimney symbolizes the elimination of noxious and dangerous smoke and fumes and the importance of **Safety** programs to human relations.

The House of Human Relations is a well built structure composed of integrated and interdependent parts. It is a basic plan which, properly applied with full consideration to the circumstances of the particular situation, will give soundness and balance to a human relations program.

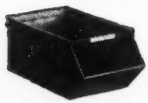
Copies of the brochure presenting **The House of Human Relations** in color may be obtained free of charge by writing to Dillard E. Bird Associates, 737 Dixie Terminal Building, Cincinnati 2, Ohio.

"Speed-o-matic," an electric torqueless impact nut setter for driving bolts and nuts up to ¾ inch, is fully illustrated and described in a four-page folder issued by the Illinois Gage & Manufacturing Co., 4639 W. Washington Blvd., Chicago 34, Ill. Copy free upon request.



STACKBINS IN STACKRACKS

REDUCE HANDLING
of Tools, Parts and Materials





STACKBINS are individual hopper-fronted stacking bins, designed for storage, transportation and assembly of tools, parts and materials.

STACKRACKS are individual units which lock together to form racks of any size, shape or capacity. Stackbins slide like drawers in Stackracks.

Because Stackbins are portable containers – not fixtures – tools, parts and materials can be carried to departments, from machine to machine, or held in stockrooms without being transferred from one container to another. Stored in Stackracks, any Stackbin is instantly accessible when its contents are needed – without disturbing any other bin.

Manufactured and sold in Canada exclusively by Walter H. Wickware, Ottawa

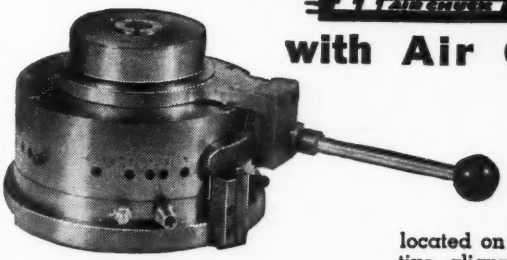
Write Stackbin Corp., 1083 Main St., Pawtucket, R. I.

STACKBIN SYSTEM

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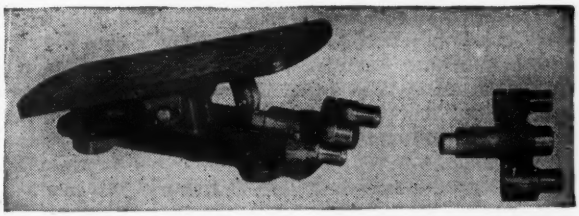
Redmer Air Chuck Index Chuck with Air Operated Collet



RC-5

Eliminates removing chuck from base of machine for changing index position. Index screw posts located on OUTSIDE of chuck. Provides positive alignment and depth control by using stationary type collets. Capacity 1/16" to 2".

Redmer Air Chuck Air Foot Control and Valve

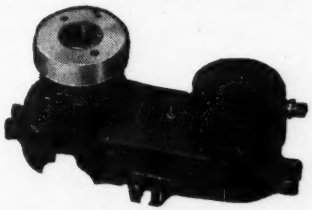


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Designed to make its operation as tireless as possible. Opening and closing of plunger of valve on foot pedal is operated by a roller on pedal casting which relieves wear on plunger and facilitates operation. Valve is a brass casting which will take plenty of abuse and can be removed from the foot control and used as a separate unit in connection with cam operations.

Redmer Air Chuck Collet Air Chuck

An air operated collet holding fixture using same type collets as Brown & Sharpe automatic screw machines. For drilling, milling, threading, etc., also for assembly work. Six models, No. 00, No. 10, No. 0, No. 2, No. 2 Special, No. 4, Collet Capacity 1/16" to 3½". **AVAILABLE WITH AIR EJECTION OR OIL FLUSHING.**



Write for literature and prices

REDMER AIR DEVICES CORP.

9132 W. BELMONT AVENUE, FRANKLIN PARK, ILL.

Symposium on Non-Destructive Testing

ASM Tri-Chapter Meeting To Be Held in Cincinnati, April 8, 1948

THE Cincinnati, Columbus and Dayton Chapters of the American Society for Metals will hold a one-day symposium on non-destructive testing at the Engineering Society of Cincinnati on Thursday, April 8, 1948, in which speakers from all over the industrial part of the United States will participate. The program is as follows:

"SR-4, The Bonded Wire Resistance Strain Gage," by F. G. Tatnall, Manager of Testing Research, The Baldwin Locomotive Works, Philadelphia, Pa. From 1928 to 1943 Mr. Tatnall was Manager of the Testing Machine Department of Baldwin-Southwark, in which position he directed the development of stress-strain recorders, fatigue, impact and creep testing equipment, electronics laboratory and shops for manufacture of stress analysis apparatus. Since 1943 he has been Manager of Testing Research.

"The Development and Application of the Twenty-Two Million Volt Betatron in Industrial Radiography," by Jack Turner Wilson, Physicist, Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin. Mr. Wilson points out that the developments in nuclear physics in recent years have been due in large measure to the great strides that have been made in the design of high-energy machines, and presents a detailed discussion of the design and operation of these machines.

"The General Electric Metals Comparator," by Donald E. Bovey, Development Engineer, General Engineering and Consulting Laboratory, General Electric Company. Mr. Bovey will discuss the new metals comparator which was developed by the General Electric Company to meet the increasing need for non-destructive means of metal sorting and identification.

"The General Electric Ultrasonic Materials Tester," by Howard E. Van-Valkenburg, Development Engineer, General Engineering and Consulting Laboratory, General Electric Company. As a member of the High Voltage and Nucleonics Division of General Electric's General Engineering and Consulting Laboratory, Mr. Van Valkenburg has been intimately involved in the development of the Ultrasonic Materials Tester. He will present a discussion of the design of the instrument and the application of ultrasonics to the inspection of materials.

"Inspection with Magnaflux," by Mr. C. E. Betz, Executive Vice President, Magnaflux Corporation, Chicago, Illinois. Mr. Betz will discuss the newest applications of the Magnaflux testing instrument in modern industry. Mr. Betz will also talk on "Stress Analysis with Stresscoat. (Synopsis of talk had not been received at the time of going to press.)

"Inspection with Zyglo," by Mr. W.

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"THE STANDARD CARBIDE"

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brings to your mill these advantages—

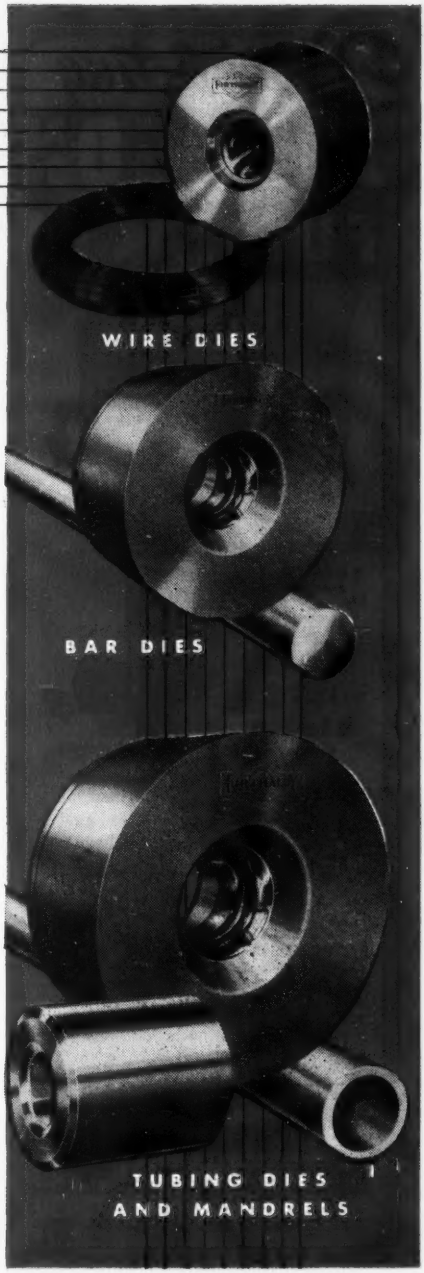
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- *minimum down-time*
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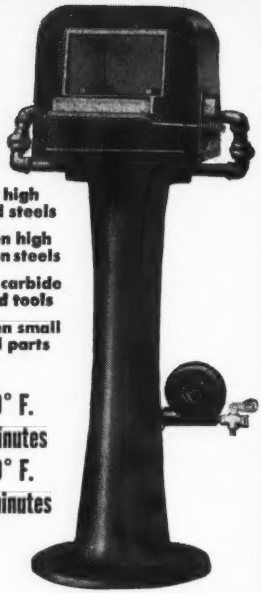
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• Braze carbide tipped tools
• Harden small metal parts

1500° F.
in 5 minutes
2300° F.
in 30 minutes

JOHNSON Hi-Speed No. 120

A fast, versatile unit for toolroom and shop. Hardens any steels. Gets the job done quickly to save time and gas. Compact, powerful, and remarkably economical to operate. Easily regulated. Firebox 5 x 7¾ x 13½. Complete with Carbofrax Hearth, G.E. Motor and Johnson Blower.

$145.50 F.O.B. Factory. Order Today!

SEND FOR FREE CATALOG

JOHNSON GAS APPLIANCE CO.
571 E Ave. N. W., Cedar Rapids, Iowa

E. Thomas, Vice President, Magnaflux Corporation, Chicago, Illinois. (Synopsis of talk had not been received at the time of going to press.)

"The Practicability of Non-Destructive Testing with Supersonics," by R. H. Frank and R. W. Renner, Sperry Products, Inc., Hoboken, New Jersey. (Synopsis of talk had not been received at the time of going to press.)

"Coordination Between Various Methods of Testing," by Prof. George M. Enos, Chairman, Division of Metallurgical Engineering, Purdue University, Lafayette, Indiana. Prof. Enos will discuss examples of correlation between various kinds of testing and how the results of one test may influence the interpretation of the results of another test.

Pond Production Operator "200," a bar stock feeder which is designed to eliminate all manual operations, is fully illustrated and described in a four-page folder prepared by the Production Tool & Die Co., Inc., 572 St. James Ave., Springfield, Mass. Data are also provided on the Pond Operator Model "600" for secondary operations such as drilling, countersinking, tapping, milling, reaming, counterboring, slotting, and so on. Copy free upon request.

Pope Precision Internal Grinding Spindles with Sealed Lubrication are featured in a 28-page catalog prepared by the Pope Machinery Corp., 261 River St., Haverhill, Mass. The catalog provides information on how to select the proper internal grinding spindle for a particular job, including drawings and dimensional data on the various Pope Precision Internal Grinding Spindles. Copy of Catalog No. 56 free upon request.

"Cyclic Annealing" is the title of a four-page bulletin published by the Ajax Electric Co., Inc., Frankford Ave. at Delaware Ave., Philadelphia 23, Pa., which illustrates and discusses the use of Ajax-Hultgren Electric Salt Bath Furnaces in the cyclic annealing of forgings, wire, rod, stampings, castings, and so on. Copy of Bulletin 121 free upon request.

PRODUCTION MARKING

faster . better . cheaper

There are many reasons why leading manufacturers everywhere insist upon Noblewest Rapid Production Marking Equipment. But the big reason is simply this — Noblewest has kept pace with industry's demand for constantly higher marking speeds and lower costs per unit mark. As a result Noblewest is, today, the world's leading manufacturer of rapid precision equipment for the permanent marking of metal, plastic, hard rubber, wood, etc. Why not put your marking problems up to Noblewest engineers? There's no obligation. Write Noble & Westbrook Manufacturing Company, 25 Westbrook Street, East Hartford 8, Conn.



Model 275, illustrated above, is shown tooled for marking and grooving telephone wire splicing tubes. Pieces can be marked up to 125 per minute. Simple gravity feeding and unloading are both automatic and fool-proof.

MARK IT BEST WITH NOBLEWEST IMPROVED MARKING DEVICES

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EQUIPMENT FOR MARKING · GRADUATING · EMBOSSING · NUMBERING

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Ups Output 500% with 20"
Power Feed Drill Heads

WAHLUND MECHANICAL LAB.
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Power Feed Drill Presses

GLOBE MILKER
UPS PARTS OUTPUT 400%
with 15" Drill Heads

WALKER-TURNER
LIGHT MACHINE TOOLS LEAD TO PRODUCTION PROFITS

E. L. BRUCE
Miters, Drills Pre-Fab Parts
350% FASTER with Radial Saws
and 15" Drill Heads

These certified case histories of Walker-Turner Light Machine Tool performance *on the job* prove how, in every case, production was both simplified and speeded up after their installation. For more complete information about the many operations in which these versatile, adaptable Light Machine Tools are used, write for the new booklet "Case Studies".

HINES FLASK CO.
Grinding and Drilling Production
INCREASED 500%
with 20" Drill Heads

WRIGHT AERONAUTICAL
SAVES 30% PRODUCTION TIME
with 20" Power Feed Drill Heads

TUBE MANIFOLD CO.
Ups Drilling Production 700%
with 20" Power Feed
Drill Heads

14" and 16" Band Saw



20" Power Feed Drill Press



Radial Metal Cut-off



Radial Drill



FOR EXAMPLE

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INCREASED TAPPING 400%
with 15" Drill Heads

DONNELLY ELECTRIC & MFG. CO.
SIMPLIFIES Drilling by Overhead
Mounting of 15" Drill Heads

Walker-Turner Light Machine Tools, in setups designed by users, have replaced heavier, more costly machine tools for a wide variety of operations . . . their adaptability to special setups is unlimited. Durably built, they work to close tolerances over long periods. Easy to operate, they step up rate of production and lower costs. *For complete catalog, write to Walker-Turner Co., Plainfield, New Jersey.*

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DRILL PRESSES—HAND AND POWER FEED
RADIAL DRILLS • RADIAL SAWS
BAND SAWS—FOR WOOD OR METAL
RADIAL METAL CUT-OFF MACHINES • MOTORS

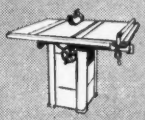
KINGSTON-CONLEY
TRIPLES PRODUCTION
Turning Shafts with
20" Power Feed Drill Heads

CHARLES MARTI PRODUCTS
MAKES SCREW MACHINE
PARTS 30% FASTER
with 15" Drill Presses

Radial Saw 2-3 HP



10" Tilting Arbor Saw



15" Bench Model Drill Press



Grinder



WELL BUILT MFG. CO.
SLASHES 2/3 from Prefab Cutting
Costs with Radial Saws

News of the Industry

Cleveland Twist Drill Dedicates Five Patents

The Cleveland Twist Drill Co., 1242 E. 49th St., Cleveland 14, Ohio, as a gesture of good will to the metal-working industry, has taken the unusual step of dedicating to the public five of its patents covering tools embodying hard non-ferrous metal inserts such as may be formed of tungsten carbide.

This unique dedication covers the following patents: Re. 19,182, drill and like instrument and method of making same; 1,887,372, cutting and forming tools; 1,887,373, reamers and the like; 1,887,374, drill; 1,977,845, cutting and forming tools, implements and the like, and method of making same.

Armstrong Bros. Tool Company Occupies New Plant

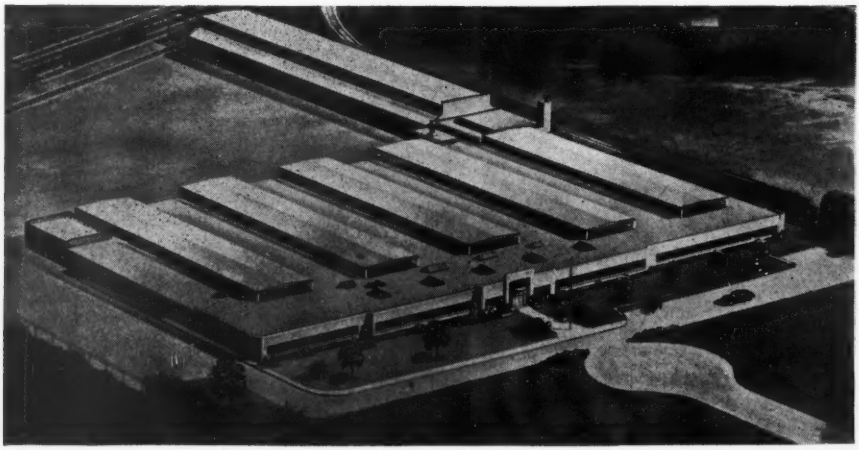
According to a recent announcement, the Armstrong Bros. Tool Co., is now located at its new general offices and plant situated in the Elston-Central Industrial District at 5200 W. Armstrong Ave., Chicago 30, Ill. Founded in 1890, Armstrong Bros. Tool Co. has grown steadily until today the Armstrong catalog lists over 6,500 different tool items and the Armstrong reputation for quality tools is world-wide.

Now operating in its ultra-modern plant, the Armstrong Bros. Tool Co. has over 170,000 sq. ft. of manufacturing space devoted to the further development of its line of tools.

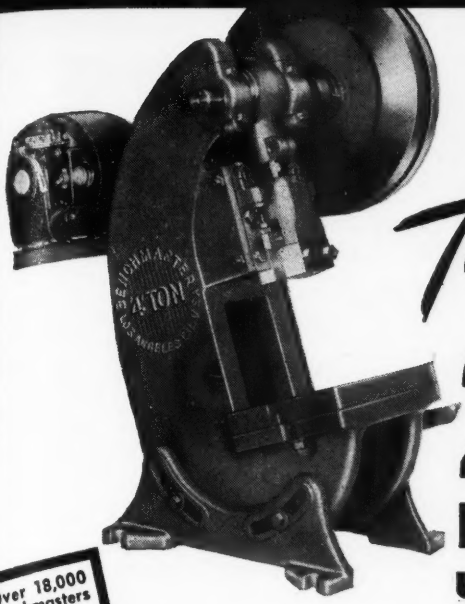
J. A. Wagner Corporation Formed

According to a recent announcement, J. A. Wagner has formed the J. A. Wagner Corp., Inc., 6715 Detroit, Cleveland 2, Ohio, and offers the following services to the trade: the designing of special machinery, tools, tooling, jigs and fixtures; the designing and building of special machinery, tools and tooling; and the designing and manufacturing of fixed spindle multiple drill heads.

The firm will manufacture Wagner adjustable spindle drill heads, rotary index



New Plant of Armstrong Bros. Tool Co.



Throughout the world

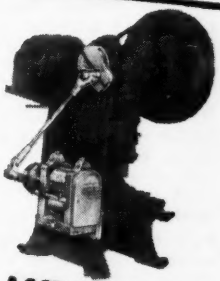
28 countries agree on BENCHMASTER UTILITY and PERFORMANCE

Over 18,000 Benchmasters Now in Use

These smooth operating little presses have a trouble-free way of operating day after day, of setting record after record for production and versatility of application. LOW INITIAL COST is one of the many reasons you can profitably use a Benchmaster, even where punch presses aren't ordinarily considered. And fewer tools have a wider diversity of uses or a better testimonial for satisfactory performance than Benchmaster—proved by acceptance and use of more than 18,000 in 28 countries throughout the world!

BENCHMASTER
4-TON PUNCH PRESS

HIGH SPEED—285 strokes per minute.
LONG LIFE—Replaceable bronze bushings at important wear points.
TOP STRENGTH—Nickel semi-steel frame.
MAXIMUM CONVENIENCE—Cradle mounted, inclinable open-back construction.
CAPACITY—Choice of 1" or 1¼" stroke standard. 1½" and 2" stroke available. Bed area 6" x 8". Die space 5¾" to bolster plate, ram up.



ACCESSORIES:
BENCHMASTER AUTOMATIC FRICTION ROLL FEED bolts to Benchmaster (and most other presses) for either front or side feed. Handles stock up to 3" wide x 3/16" thick. Adjustable feed: 0" to 3" per stroke. Adjustable for die height. Uniformly feeds strip or roll stock of metal, wood, plastic, cardboard, felt, etc. Saves labor, adds operator safety, assures uniform, high production.

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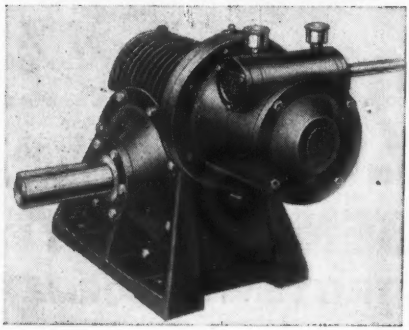
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Janette

Speed REDUCERS

Motorized or Motorless

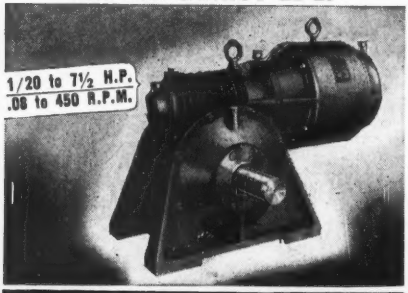


JANETTE Offers the Manufacturer of slow speed machines a large variety of sizes and types of ***EITHER MOTORIZED*** or ***MOTORLESS*** speed reducers. They are compact, pleasing in appearance, ruggedly constructed, with ample sized gears, shafts, bearings and bases to insure many years of trouble free service.

SPEED REDUCERS provide a practical, simple method for obtaining slow speeds from efficient, high speed motors, without using chains, sprockets, belts, pulleys or exposed gearing.

JANETTE build their own motors which are especially designed for driving speed reducers. Because of the large variety of reducers available, *THERE IS A SIZE AND TYPE FOR ALMOST ANY COMMERCIAL APPLICATION.*

ASK FOR CATALOG 22-27



Janette Manufacturing Company
556 W Monroe St. Chicago 6, Ill.

tables, hydro spindle drilling units and standard production drilling machines, horizontal continuous rotary milling machines, and 8 and 12-spindle vertical continuous rotary drilling machines.

Department of Welding Engineering Established at OSU

Establishment of a Department of Welding Engineering, the first of its kind in the nation, was recently announced at Ohio State University by President Howard L. Bevis.

In the College of Engineering at the University, the new department will offer undergraduate work leading to the degree of Bachelor of Welding Engineering and advanced study for graduate engineers.

A pioneer in the field of welding engineering, Ohio State's College of Engineering has offered a curriculum in this field for some nine years, as a division of the Department of Industrial Engineering.

Establishment of the division as a separate department was authorized by the Board of Trustees on the recommendation of the College of Engineering and the Faculty Council. Curricula designed to meet the demands of industry for welding engineers will be developed in consultation with leading engineers in the nation, Dr. Bevis said.

Note Panambra's Home Address

The News Section of the November issue of MODERN MACHINE SHOP announced that E. J. Lahr of Panambra S. A., a Brazilian importing and exporting firm, would presently be located at the Pan-American Trade Development Corporation in New York. Mr. Lahr is now back home in Brazil and can be reached at Panambra S. A., Rua Libero Badoro No. 158-9 Andar, Sao Paulo, Brazil.

Wales Type "C" Hole Punching Units. A seventh edition of its Catalog C on Wales Types "C," "E," and "EJ" Hole Punching Units is now being distributed by the Wales-Strippit Corp., 345 Payne Ave., North Tonawanda, N. Y. The units illustrated and described in the catalog are primarily intended for punching rivet holes in sheets, angles, and extrusions, and are independent and self-contained, with nothing to attach to the press ram, thus providing for rapid setups on press brake rails. Copy of Catalog C free.

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Every Type...
OF END MILL IS AVAILABLE IN THE
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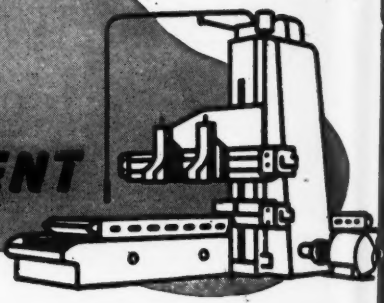


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NEW SHOP EQUIPMENT

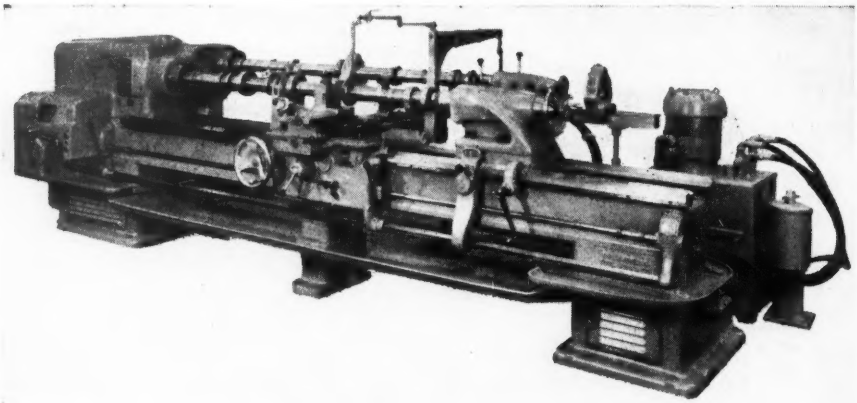


"American" Hydraulic Cam-Duplicating Lathe

Especially designed to provide for maximum economy in Diesel engine production, the "American" Hydraulic Cam-Duplicating Lathe illustrated herewith has been developed by The American Tool Works Co., Cincinnati 2, Ohio. Basically, the machine consists of a 20-inch American Pacemaker lathe with built-in hydraulic duplicating equipment for reproducing work from a revolving template by means of a hydraulically controlled cutting tool.

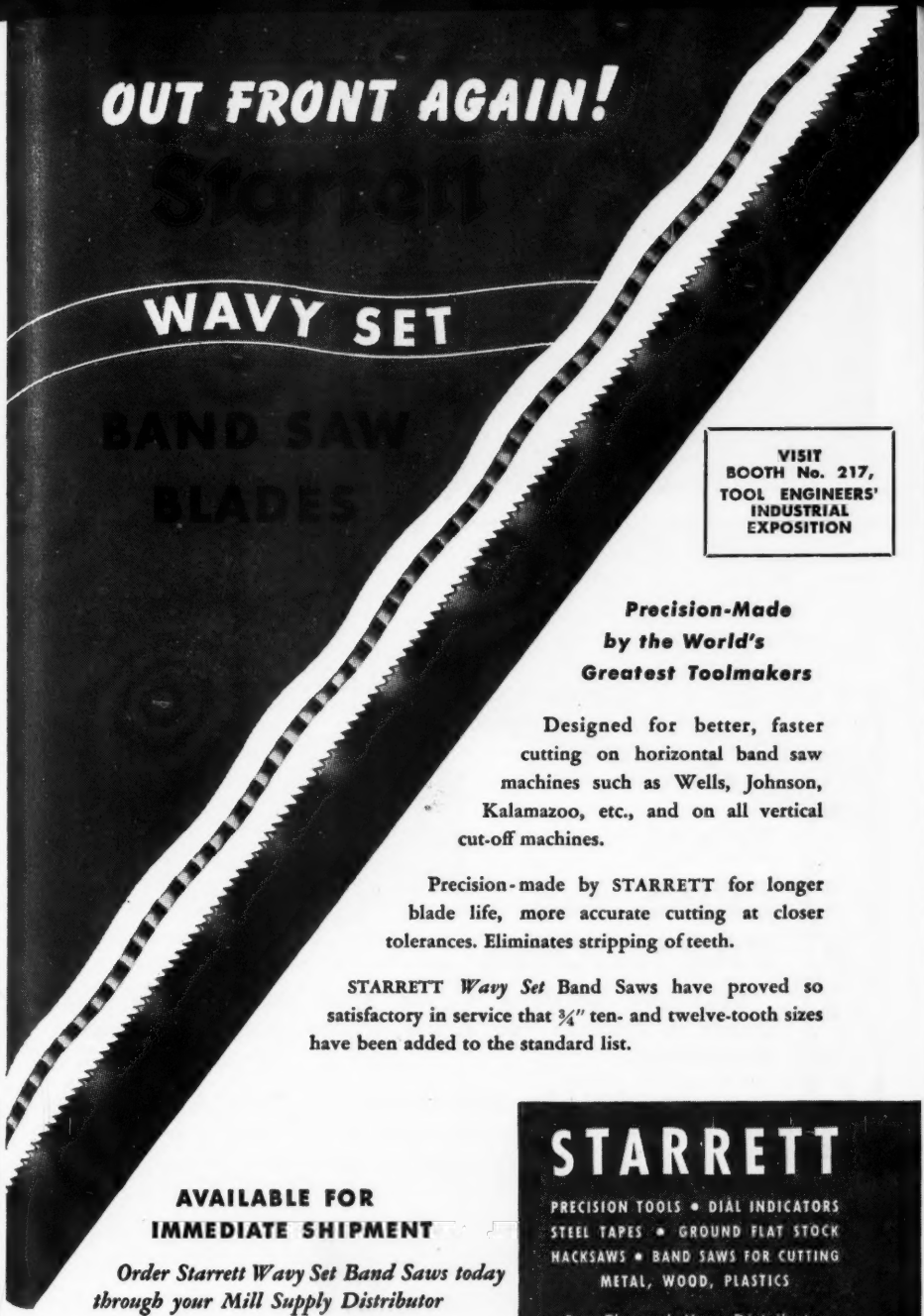
With the machine, cams are turned from a disc in one cut, after which they are ready for the finish grinding operation. The smoothness of the cut resulting from the hydraulically controlled cutting tool effects a high quality surface finish on each cam and allows for the accurate reproduction of the contour of the master. In addition, the complete elimination of spring action shock is said to ensure the maintenance of original alignment for a long period and long effective life for the machine.

The revolving template may be either a finished cam shaft with integral cams, as shown in the accompanying illustration, or a shaft with a series of loose cams mounted thereon. The drive for the revolving template is taken from the spindle by spur gears which synchronize the speed of the template with that of the



"American" Hydraulic Cam-Duplicating Lathe

OUT FRONT AGAIN!



VISIT BOOTH No. 217, TOOL ENGINEERS' INDUSTRIAL EXPOSITION

Precision-Made by the World's Greatest Toolmakers

Designed for better, faster cutting on horizontal band saw machines such as Wells, Johnson, Kalamazoo, etc., and on all vertical cut-off machines.

Precision-made by STARRETT for longer blade life, more accurate cutting at closer tolerances. Eliminates stripping of teeth.

STARRETT *Wavy Set* Band Saws have proved so satisfactory in service that ¾" ten- and twelve-tooth sizes have been added to the standard list.

AVAILABLE FOR IMMEDIATE SHIPMENT

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METAL, WOOD, PLASTICS

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Close-up view of "American" Hydraulic Cam-Duplicating Lathe showing finished cam shaft with integral cams that serves as a revolving template

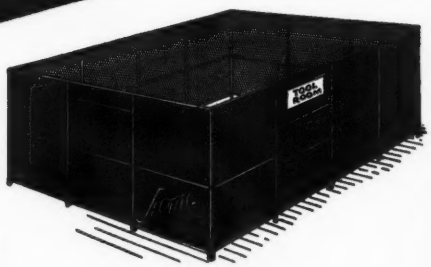
spindle. The template support mechanism is attached to the rear of the bed, thereby eliminating loading and unloading interference, and carries the driving head and tailstock with anti-friction center between which the template is mounted. Adjustable steady rests with bronze-tipped jaws mounted on the template support bar are used to maintain the alignment of the template.

The work to be formed is driven by a headstock driver at approximately 20 r.p.m. and is supported by an anti-friction center in the tailstock and an easily removable and quick-acting steady rest.

H-P-M 200-Ton Hydraulic Press

The H-P-M 200-Ton Hydraulic Press shown herewith, product of The Hydraulic Press Manufacturing Co., Mount Gilead, Ohio, is designed for straightening weldments, castings, and other large area parts. An outstanding advantage of the

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Standard Sections Woven Wire Mesh Panels and Doors to enclose Tool Cribs, Stock rooms and other enclosures.

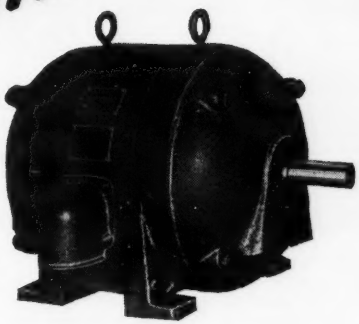
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. . . You don't have to Baby a LIMA Motor . . .



Type RS

RUGGED SERVICE

That's right . . . you don't have to Baby LIMA Motors.

Type RS illustrated, is ruggedly built for rugged industrial service. LIMA RS motors are especially adaptable to original equipment applications. Their semi-enclosed, drip-proof construction makes them suitable for all types of uses where totally-enclosed motors are not required. Type RS is available in all standard NEMA frame sizes from ½ to 75 hp, for polyphase operation.

LIMA also builds Special Motors . . . Rotors and Stators in either two or three phase, 25, 50 or 60 cycle, 220/440v AC. Submit your motor problems to LIMA . . . There is no obligation for our recommendations.



THE LIMA ELECTRIC MOTOR CO.

172 FINDLAY ROAD

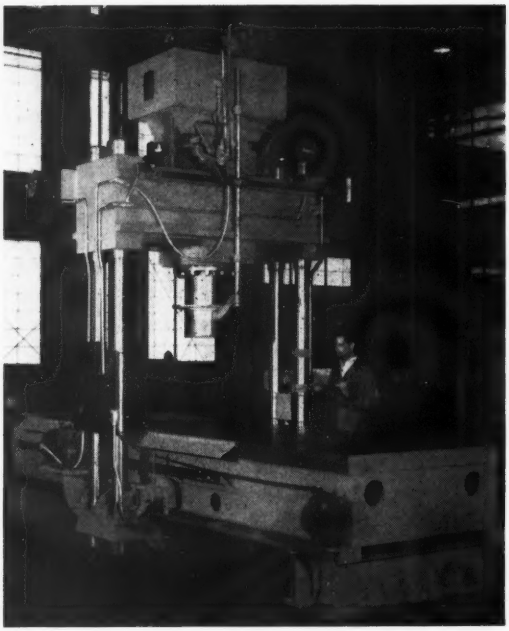
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LIMA GEARSHIFT DRIVES

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H-P-M 200-Ton Hydraulic Press

press is that the maximum pressure can be applied at any point within a 120 x 38-inch area of the stationary press bed.

The pressure ram is movable for 120 inches in a horizontal plane along the bed and can also be traversed for 38 inches in a horizontal plane at right angles between the two sets of strain rods. Positioning of the ram is controlled electrically by the operator at a central control station. The vertical hydraulic traverse of the ram to and from the work is controlled by a convenient hand lever at the control station. A dial type hydraulic pressure gage indicates to the operator the exact pressure being applied to the work.

The H-P-M 200-Ton Hydraulic Press is a completely self-contained unit requiring only electric power for operation. An H-P-M Hydro-Power radial variable delivery type pump generates the hydraulic pressure for operation. Oil is used as the pressure medium. The maximum daylight space between the ram facing and the bed is 36 inches. The hydraulic pump is driven through a flexible coupling by a 5 h.p. electric motor.

DoAll Abrasive Cut-Off Machine

The DoAll Co., Des Plaines, Ill., announces an abrasive cut-off machine which is available in two models for dry and wet cutting. The Model D-2 is a dry-type machine utilizing a 10-inch wheel mounted on a swinging arbor powered by a 3 h.p. motor. This model is intended primarily for use in toolroom and job shop work where fast cutting is necessary in either hard or soft materials.

The Model W shown herewith is a larger machine than the Model D-2 and includes a coolant tank and pump for wet cutting. The machine utilizes a 16-inch wheel powered by a 7½ h.p. motor. The use of coolant in this type of machine is

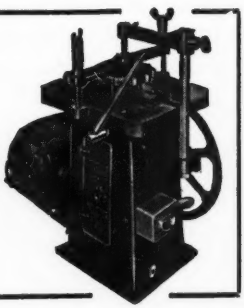
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THE READING BROACH KEYSEATER

The Reading Bench Machine requires no bushings, guides or pilots. No other machine like it. Very fast—capacity from ⅛ to ⅜ cutter.

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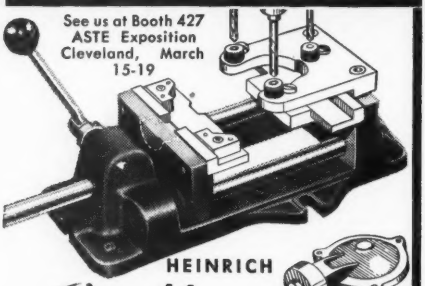
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This unique *screwless* vise provides instantaneous, effortless setting. Patented gripping mechanism guarantees positive locking. Wide clearance between guide bars permits clear-through drilling. Built-in parallels save leveling time. Write for folder.

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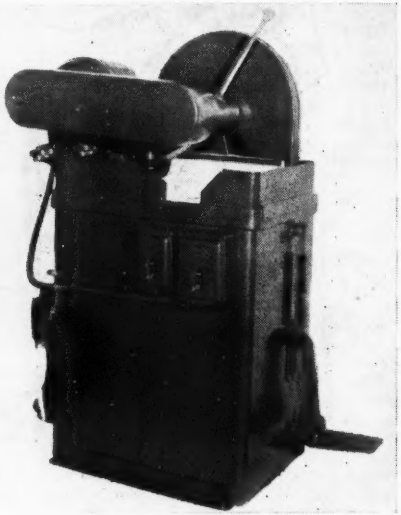
A five-in-one "handyman" which nibbles (outside and inside), shears, punches and cuts rods. Eliminates hours of tedious hand - work. Quickly, easily cuts templates and trial blanks in any desired shape. Takes up to 3/16" flat stock. Also 3/8" round stock. Write today for illustrated folder.

NATIONAL MACHINE TOOL COMPANY

DEPT. 118-C • RACINE, WISCONSIN

said to reduce cutting speed slightly but to assure long wheel life and the production of surface finishes free from burring and discoloration from burning. The Model W is intended primarily for use on the production line where fast cutting is required and long tool or wheel life is an essential factor.

Both the Model D-2 and the Model W are designed to provide extremely high wheel speeds. The wheels are fully enclosed in heavy cast iron guards for safety. Work vises, arranged for quick operation by foot pedals and with sufficient



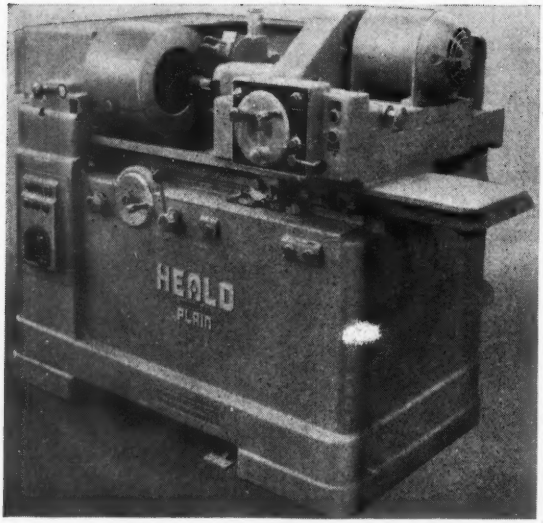
DoAll Model W Abrasive Cut-Off Machine

leverage to hold work firmly, are standard equipment. Also included are adjustable stop gages for accurately cutting work to length. The arbors on both machines are made of 1-inch chrome-vanadium steel and are mounted on preloaded ball bearings, sealed on the outside and provided with adjustable take-up.

Heald Model 271 Plain Internal Grinding Machine

To meet demand for grinding equipment suitable for small to medium lot production where an automatic cycle is not required, The Heald Machine Co., Worcester 6, Mass., has brought out the Heald


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Electric
GRINDERS
TRULY LIFE-TIME MOTORS®
B-LINE
POWERED BY
B-Line
ELECTRIC MOTORS
Ask for
MOTOR AND GEARMOTOR
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THE BROWN-BROCKMEYER COMPANY
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GENERAL OFFICES, DAYTON 1, OHIO
District Offices in Principal Cities

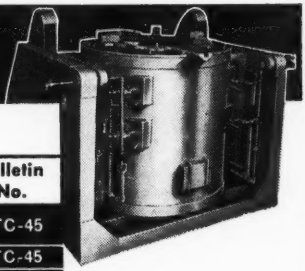


Heald Model 271 Plain Internal Grinding Machine

Model 271 Plain Internal Grinding Machine shown herewith. Designed to provide for maximum ease in setting up, the machine features a wheelhead cross slide with centralized control panel whereby all elements of the grinding cycle can be rapidly and accurately set for rate and amount. All knobs and levers are clearly marked to show their function.

Additional features of the Heald Model 271 Plain Internal Grinding Machine include motor and pump units that are isolated from the base; convenient control location; rugged workhead construction; automatic lubrication; and hydraulic refinements providing for constant feeds and speeds. Specifications of the machine are as follows: swing over table, 18-inch diameter; swing inside of standard coolant guard, 12-inch diameter; maximum length of hole that can be ground, 8 inches; maximum diameter of hole that can be ground, 5 inches; minimum diam-

NON-FERROUS METAL
MELTING FURNACES



SELECTION TABLE

	TYPE	Max. Temp.	Series	Recommended for	Bulletin No.
TILTING	CRUCIBLE	2500°F.	TCR	Melting Brass and Copper	TC-45
		1400°F.	TCA	Melting Aluminum	TC-45
	POT	1400°F.	TP	Melting Aluminum and Magnesium	TP-45
STATIONARY	CRUCIBLE	2500°F.	CR	Melting Brass and Copper	CR-45
		1400°F.	AC	Melting Aluminum	AC-45
	POT	1400°F.	AM	Melting Aluminum	AM-45
		1200°F.	SM	Melting Soft Metals	AM-45
		1000°F.	SA SAV	Melting Soft Metals	SV-45

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WRITE FOR COMPLETE SPECIFICATIONS

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For ANY Size Machine

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Accuracy -- Stamina

WRITE TODAY For Complete Details . . . .

A Few Openings For GOOD Distributors

CHANDLER TOOL CO.

MUNCIE, INDIANA, U. S. A.

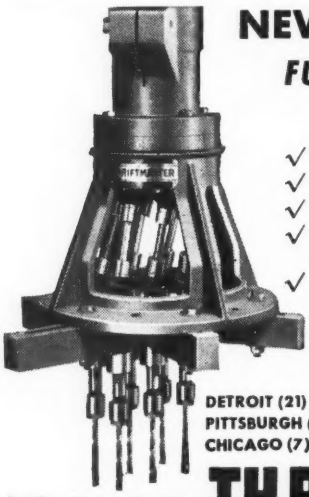
eter of hole that can be ground, ⅛ inch; maximum included angle of taper, 45 deg., center of chuck spindle from floor, 43½ inches; diameter of workhead spindle flange, 9⅝ inches; hole through workhead spindle, 1⅝ inches; table travel, 16 inches; table speeds, 0 to 35 f.p.m.; workhead speeds, 723, 479, 360, and 242 r.p.m; one turn of crossfeed handwheel, 0.060 inch on diameter; roughing cross feed, 0.0001 to 0.001 inch on diameter; finishing cross feed, 0.0001 inch on diameter; one turn of table handwheel feed (coarse), 1¼-inch table travel; one turn of table handwheel feed (fine), 0.025-inch table travel; hydraulic pump motor, 60-cycle, 2 h.p., 1,800 r.p.m. workhead motor, 1½, 1¾, ½ h.p., 1,800, 1,200, 900, 600 r.p.m.; wheelhead motor, 60-cycle, 5 h.p., 3,600 r.p.m.; coolant pump motor, 60-cycle, ¼ h.p., 1,800 r.p.m.; capacity of oil tank, 15 gal.; capacity of standard coolant tank, 55 gal.; length and width of base on floor, 67½ x 36 inches; floor space (total) without coolant tank, 85 x 56 inches floor space (total) with coolant tank, 85 x 65 inches; net weight of machine (approx.), 7,200 lb.; gross weight crated (approx.), 8,200 lb.; and gross weight boxed (approx.), 8,600 lb. (396 cu. ft.).

Sheffield Comparator

A unique comparator for accurately checking the length of precision gage blocks by air has been developed by The Sheffield Corp., Dayton 1, Ohio. The instrument includes no gage point contact, the only pressure exerted on the work being that of a stream of air flowing against the upper and lower surfaces. According to the manufacturer, the design of the comparator is such that it is not necessary to wring the gage block to the anvil, with possible resulting minute wear, and no distortions are set up in placing the block in gaging position.

The comparator consists of a gaging unit and a Precisionaire base instrument with an amplification of up to 40,000 to 1. Each minor graduation of the scale represents one millionth of an inch. The gaging unit has one jet in the diagonally serrated anvil and another in the gaging head which is mounted on a bracket that is adjustable vertically on a column. The air to both jets is supplied from one hose connected to the base instrument.

The gage blocks are checked against a master calibrated set of blocks which is used in setting up the instrument and obtaining a zero reading. The gage block



NEW ADJUSTABLE DRILLHEAD

FULL BALL BEARING . . . by Thriftmaster

FEATURING

- √ Universal Joint drive.
- √ Flexibility of operation.
- √ Unusually strong construction.
- √ High overload capacity throughout.
- √ Special alloy, test hardened gears, and spindles.
- √ Made for right hand rotation of drill press.
- √ Sufficiently rugged for use with power feed.
- √ Rated at full capacity of ¼" drill in steel.
- √ Furnished with 2—6 spindles, minimum 1⅛" center spacing within 6¼" diameter circle.

For complete engineering information, write to:
Engineering Department, Thriftmaster Products Corporation
1048 N. Plum St., Lancaster, Pa.

DETROIT (21) B. E. Parish Company
PITTSBURGH (16) Voss Machinery Co.
CHICAGO (7) Gatz-Arnold Company
BOSTON (16) A. R. Shevlin Company
PHILADELPHIA (40) Wright & Gade Tool Co.
INDIANAPOLIS, R. L. Guimont Co.

THRIFTMASTER

Multiple Spindle Drillheads

FIXED AND ADJUSTABLE CENTERS



"This modern ALCO Drill Chuck has made it possible for us to meet some of the toughest production schedules we ever had to face.

"When we equipped our screw machine department with ALCO Holders, it was the smartest move we ever made, and one of the biggest savings was in eliminating our bushing inventory; because these ALCO Holders have a tight grip without using bushings.

"We only need a comparatively few of these tools to do all our work for we use the same ALCO Chuck to hold drills, counter bores, reamers and spotters.

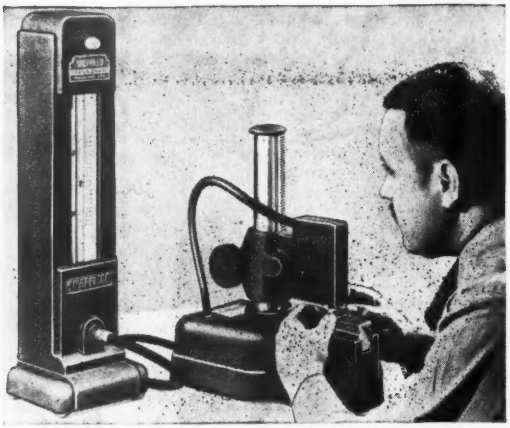
"One thing which makes these tools outstanding is the adjustment for concentric drilling or reaming. Even on our old machines, we turn out perfect work and have no rejects because of this concentricity."

Write for new catalog No. 6

ALCO EFFICIENT TOOLS

THE ALCO TOOL CO.

152 Birdseye St., Bridgeport, Conn. **Detroit Office: 908 Stephenson Bldg.**



Sheffield Comparator being used to check the length of a precision gage block

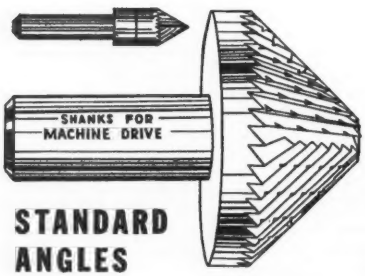
to be checked is then placed on the anvil between the two air gaging jets. Any change of the float from zero indicates the deviation from the master, and the amount is read directly from the graduated scale. For comparisons of other external dimensions of either flat or plane surface parts of a less critical nature, the gaging unit may be used with Precisionaire base instruments of lower amplification.

Gorton O-16A Super-Speed Milling Machine

Unusually sensitive and convenient to operate since it is proportioned to permit the operator to sit at the machine in a normal and comfortable position, a super-speed ram type hand feed vertical milling machine which is available with either a swivel head or universal head, thus making it adaptable to a wide range of work, is now being offered by George Gorton Machine Co., 1701 Racine St., Racine, Wis. The adjustable ram, heavy column, sensitive table and saddle movements, and quickly adjustable swiveling or universal head with super-speed spin-

INSIDE DEBURRING CUTTERS

HIGH SPEED STEEL



STANDARD ANGLES

30° - 45°
STOCKED IN 8 SIZES EACH ANGLE



SPECIAL ANGLES FROM STOCK BLANKS





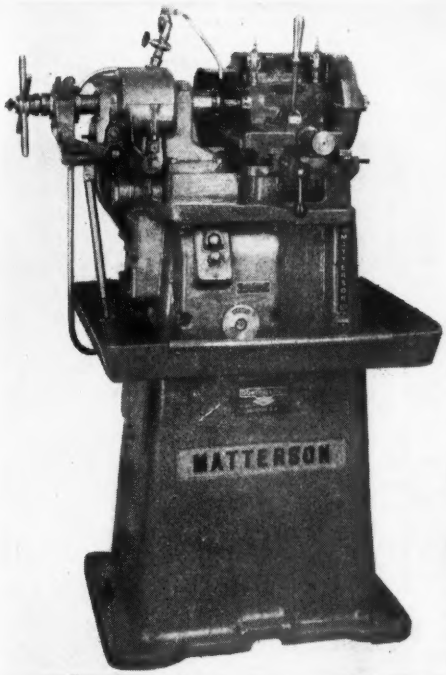
HANDLES FOR HAND USE (4 THREAD SIZES)

RADIUS TYPE 10 SIZES

SEVERANCE TOOL INDUSTRIES INC.
724 IOWA STREET
SAGINAW, • MICHIGAN

MATTERSON BRITISH BUILT

Universal Thread Milling Machines



For Accurate Thread Milling at a High Output Rate.

No. 11 on left, short thread type for external and internal threads up to 3-inch diameter by 7/8-inch hob length.

No. 12 on right, long thread type. External 6-inch diameter. Internal 5-inch x 1¼-inch hob length.

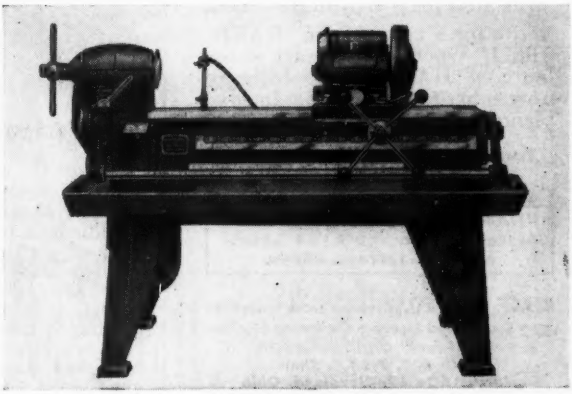
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Write now for literature. Agents wanted.

DOWDING & DOLL LIMITED

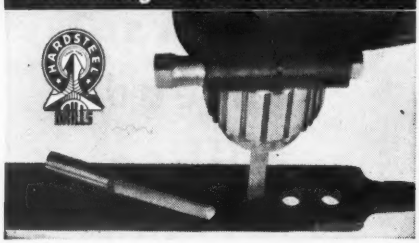
(Established 1919)

Greycoat Street, Westminster, London, S. W. 1



Codes used: Bentleys, A.B.C. 5th and 6th edition
Cables: Accuratool, London

Drill Hardened Steels *without Annealing* with "HARDSTEEL"



Don't let anyone tell you that hardened steels must be annealed before drilling, countersinking, counterboring or reaming.

With "HARDSTEEL" drills you can produce accurate, smooth holes in steels hardened by any process—oil-hardened, water hardened, cyanided, nitrided, and they work equally well on work-hardening steels and high carbon-high chrome steels of any degree of hardness.

"HARDSTEEL" drills used with standard drill presses cut costs in production shops because parts drilled after hardening always match at assembly. In service shops they save time and material and permit engineering changes calling for additional drilling to be made after parts are full hardened.

Write for a copy of the "HARDSTEEL" Operators Manual showing how "HARDSTEEL" drills are now functioning in thousands of plants in parts recovery operations.

You Harden It — We'll Drill It — with "HARDSTEEL"

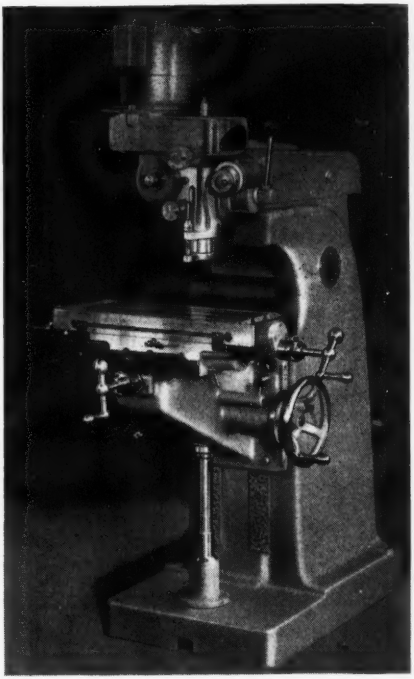
***"HARDSTEEL" Tool bits* make faster, deeper cuts on steels and non-ferrous alloys.**

BLACK DRILL CO., Division Black Industries
1372 East 222nd Street + Cleveland 17, Ohio
See "Hardsteel" Drills Demonstrated, Booth 807, A.S.T.E. Show, March 15 to 19, Cleveland, Ohio

"HARDSTEEL"
DRILLS • TOOL BITS • SPECIALS

dle are said to make the machine ideal for the toolroom, die-mold shop, and production milling on small parts. Designated as the O-16A, the machine can also be supplied especially equipped for general engraving and brass routing, as well as for die and mold duplicating.

Construction features of the Gorton O-16A Super-Speed Milling Machine include a positive spindle brake for instantaneously stopping the spindle and locking it in place when changing cutters; spindle lock for holding the spindle at the desired position for setting-up and milling operations; screw-type spindle depth stop graduated in thousandths of an inch to provide for positive and accurate setting of cutter depth; simple quick-action belt tension adjustment; and adjustable ram. A safety feature is provided at the swivel and universal joints to eliminate slipping or dropping of the head which otherwise would damage the machine or workpiece. A quarter turn of a



Gorton O-16A Super-Speed Milling Machine



GROUND FROM THE SOLID
BATH
JOHN BATH CO

IT TAKES SOMETHING EXTRA TO BE A *Specialist!*

It takes long hours of instruction... constant practice... to develop the technique and artistry of the ballet dancer!

Special skills... years of experience go into the design of BATH ground thread taps... ground to exact specifications for stock and special sizes... toughened by hardening and tempering — then ground from the solid!

BATH workmen are professionals in precision! Look for the name BATH on the tap shank... it's a distinctive mark of quality and economical performance. See your BATH representative or write direct about your tap problems.

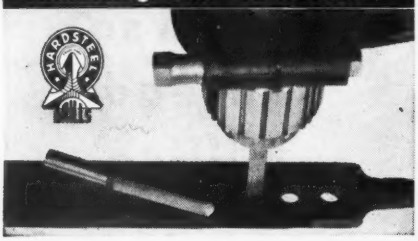
(Transportation is paid to your plant on all Bath products)

JOHN BATH CO. INCORPORATED

20 Grafton Street
WORCESTER 8, MASS.

GROUND THREAD TAPS • PLUG AND RING THREAD GAGES • INTERNAL MICROMETERS

Drill Hardened Steels *without Annealing* with "HARDSTEEL"



Don't let anyone tell you that hardened steels must be annealed before drilling, countersinking, counterboring or reaming.

With "HARDSTEEL" drills you can produce accurate, smooth holes in steels hardened by any process—oil-hardened, water hardened, cyanided, nitrided, and they work equally well on work-hardening steels and high carbon-high chrome steels of any degree of hardness.

"HARDSTEEL" drills used with standard drill presses cut costs in production shops because parts drilled after hardening always match at assembly. In service shops they save time and material and permit engineering changes calling for additional drilling to be made after parts are full hardened.

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You Harden It — We'll Drill It — with "HARDSTEEL"

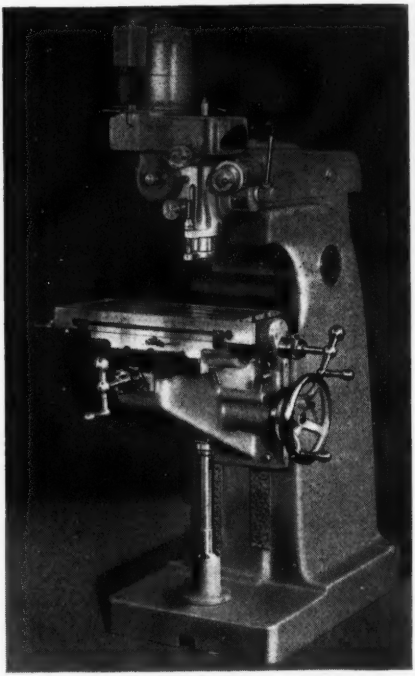
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IT TAKES SOMETHING EXTRA TO BE A *Specialist!*

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Special skills... years of experience go into the design of BATH ground thread taps... ground to exact specifications for stock and special sizes... toughened by hardening and tempering—then ground from the solid!

BATH workmen are professionals in precision! Look for the name BATH on the tap shank... it's a distinctive mark of quality and economical performance. See your BATH representative or write direct about your tap problems.

(Transportation is paid to your plant on all Bath products)

JOHN BATH CO. INCORPORATED

20 Grafton Street
WORCESTER 8, MASS.

GROUND THREAD TAPS • PLUG AND RING THREAD GAGES • INTERNAL MICROMETERS

clamp nut releases the joint sufficiently to permit easy setting to any angle of adjustment. Each joint has a large oversize face-clamping surface for maximum rigidity and accuracy and for eliminating clamping distortion. The husky ⅞-inch diameter clamping studs are said to assure positive clamping, free from twist or breakage.

The Gorton O-16A Mill can be furnished with either a single swivel head graduated 45 deg. left and 90 deg. right (will swivel 360 deg. parallel to table) or universal head providing the same adjustments as above but with an additional 45-deg. front and back movement at right angle to the table. Both heads incorporate a spindle design featuring precision anti-friction permanently grease-sealed bearings. The standard spindle accommodates the Gorton taper collet and is designed for cutters having up to ½-inch diameter shanks. A ½ h.p., high torque, reversible motor provides six spindle speeds of from 300 to 5,000 r.p.m. Speeds of from 600 to 10,000 r.p.m. can be obtained on order. Various attachments are available for the machine for adapting it to general engraving and die and mold duplication work.

Tabor Cut-Off Machine

A cut-off machine designed primarily for the metal-working industry and particularly applicable to machine shops where brass, bronze, and steel in bar stock, tubing, angles, and flats require cutting is announced by The Tabor Manufacturing Co., 6225 Tacony St., Philadelphia 35, Pa. A fully-enclosed fan-cooled 10 h.p. motor provides adequate power to maintain the proper wheel speed in cutting any desired quantity of metal or plastic.

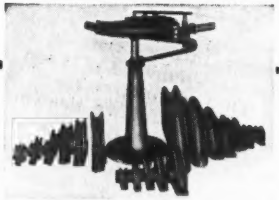
The design of the machine includes a handwheel for quickly adjusting the start of tension on any stock. A downward thrust of a lever provides for application of the desired tension. Two clamps, one on each side of the wheel, are said to hold the work so firmly in V-blocks that end support of the uncut stock is unnecessary. When any material is about to be cut, an adjustable stop swings to an upright position, thus preventing the cut piece from binding the wheel. When the wheel is retracted following completion of the cutting operation, the stop falls back into position for accurately measuring the next cut.

BEND PIPE

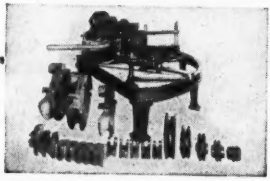
"The American Way"

BY HAND or MOTOR

MACHINES TO BEND COLD PIPE, CONDUIT, BOILER TUBING AND SOLID BAR . . . BENDING TABLES ALSO AVAILABLE



Above: Hand-powered Type A-30 . . . up to 180° bends . . . all sizes from ½" to 2". Only 7 parts. World's fastest, simplest machine. Note assortment of bending dies . . . this process makes shorter tangents than any other. Occupies only 18" x 18" floor space!



Above: Motor-powered Type E . . . bends fixed radii of 6 to 1 up to 90°. Type E bends 2½", 3", 3½" and 4" pipe. 3 horse-power motor. Floor space occupied—7' 6" x 7' 6". Other power machines up to 8" capacity.

Other Sizes Available

Factory and Main Office: 14 Furnace St., Poultney, Vermont

"American" PIPE BENDING MACHINE Company INC.

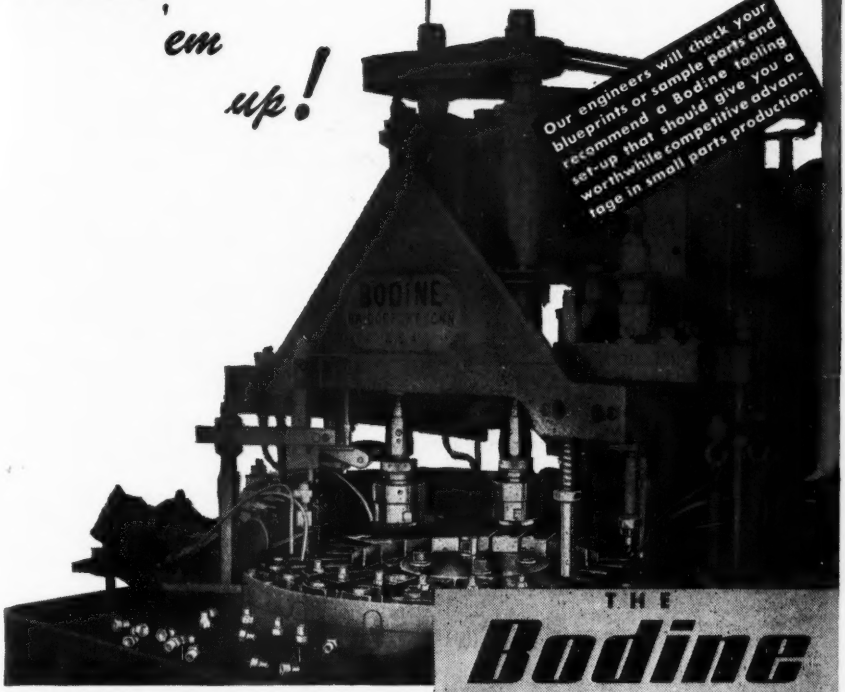
Bodine

HAS AN APPETITE FOR *Gadgets*

. . . eats 'em up!

THE versatility, accuracy and high speed of Bodine dial feed machines has been so well demonstrated that many plants requiring repetitive production of small parts, are replacing single process machines with these multiple spindle automatics.

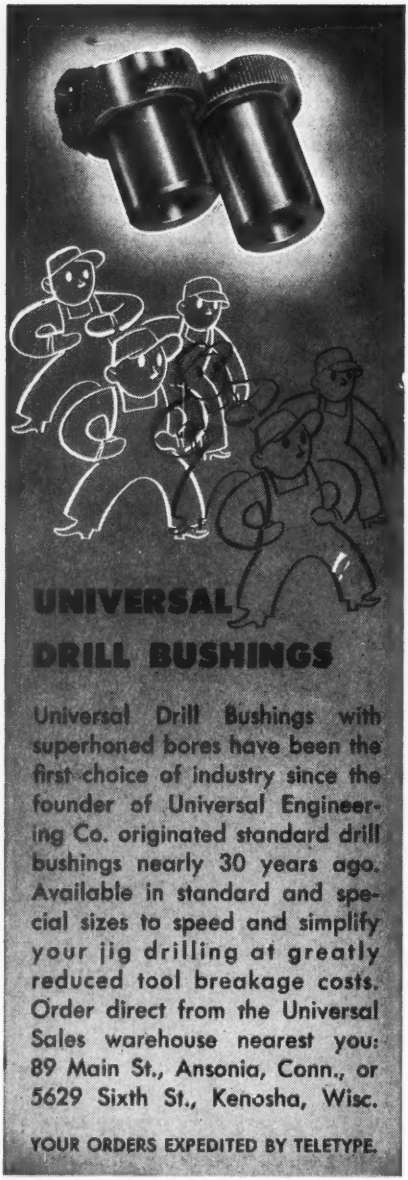
Drilling, Milling, Tapping . . . and screw inserting, if desired . . . are performed during a single cycle of the horizontal indexing dial. A recent tooling for a specific job produced 70 operations per minute (drilling, counterboring, tapping), a result which formerly required several machines and 10 operators instead of one Bodine and one 21 year old girl.



SEND FOR BULLETIN MM, showing 6 sizes of machines, typical tooling, specifications.

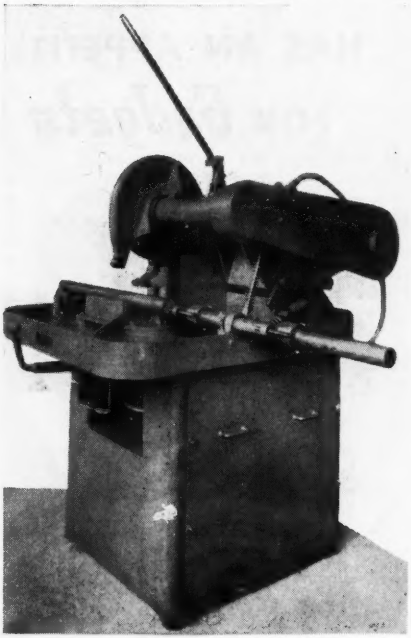
THE **Bodine** CORPORATION
BRIDGEPORT 5, CONNECTICUT

AUTOMATIC DIAL TYPE DRILLING, MILLING, TAPPING, AND SCREW INSERTING MACHINES



UNIVERSAL ENGINEERING CO.
FRANKENMUTH 9, • MICHIGAN

Electric controls for both the cutting wheel and coolant pump are conveniently provided for the operator. The cutting wheel is guarded for the safety of the operator, however, the cutting operation is fully visible at all times. Coolant is fed to both sides of the cutting wheel at the hub and is thrown centrifugally at the point of cut, thereby effecting an overall cooling action and providing for unusually fast cutting and a high quality surface finish to the cut edge, it is



Tabor Cut-Off Machine

claimed. Coolant reconditioning is accomplished in primary and secondary settling tanks. Coarse material, together with some fine material, settles out in the top, primary tank. Practically all fine material still remaining in suspension settles out in the lower, secondary tank, and only usable fluid is fed back to the pump. The tanks are designed for easy rolling from the machine on casters and can be quickly emptied as the turned-down handles become drain cocks.

Both the spindle and trunnion of the machine are roller-bearing mounted. Lubricant for the spindle is automatically controlled, thus preventing overheating.



Patrick Henry speaking before the Second Revolutionary Convention of Virginia in 1775.



RESULTS... speak for themselves!

True, Patrick Henry's famous speech got results—men were inspired to fight for a free and independent nation . . . yes, and Bay State's Mounted Wheels and Points get results too—results that speak for themselves.

There are very definite reasons for such superiority.

1 — Will not break loose from spindles
2 — Consistent hardness — no soft spots
3 — Shaped on spindles — run absolutely true
4 — Ready for immediate cutting action
5 — Unique treatments are available to prevent loading on certain types of jobs
6 — Service life is longer — can be used right down to the mandrel

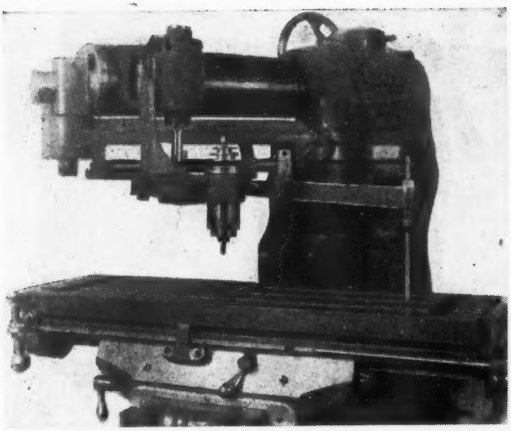
Write for complete catalog on this subject.

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BAY STATE®

Top Performance Consistently Duplicated

BAY STATE ABRASIVE PRODUCTS CO., WESTBORO, MASSACHUSETTS, U. S. A.



Auto Engraver Control-Cut Multi-Graver Installed on a Milling Machine

Auto Engraver Control-Cut Multi-Graver

The Auto Engraver Control-Cut Multi-Graver, an attachment which is designed to fit the overarm of any milling machine for use in 2 or 3-dimensional profiling and contour milling, as well as engraving, is announced by the Auto Engraver Co., Inc., 1776 Broadway, New York 19, N. Y. The attachment is said to provide reproductions at 1:1 or at ratios of 2:1 to 4:2. At 1:1, the attachment utilizes the feeds of the miller, the possible 12-inch area covered being governed only by the capacity of the machine. The same is said to be true when operating at a ratio. An area of 8 x 16 inches at 2:1 to 3½ x 10 inches at 4:1 can be covered (or proportionate at intermediate ratios).

The Auto Engraver Control-Cut Multi-Graver is made of steel and heat-treated aluminum alloy, and is completely precision ball bearing equipped. The spindle which is completely ground, has a vertical feed of ½ inch, and is provided with 4 speeds. Standard equipment of the attachment includes a draw-in bar, one ¼-inch collet, and standard engraver's taper collet.



THE NEW *Van Keuren*

0 to 3" LIGHT WAVE MICROMETER

will improve your product...

Hardened, Ground, and Lapped ½" diameter Micrometer Screw. Reads to .00001" Carboloy tipped spindle and anvil



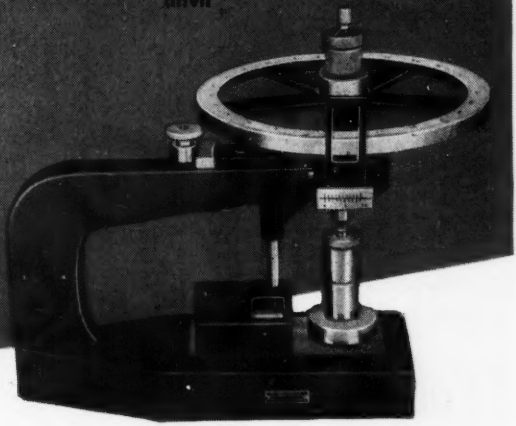
The LIGHT WAVE MICROMETER HEAD

•

A source of dependable Precision for modern machine tool and instrument applications.

•

Price, with calibration chart $75.00



THE Van Keuren Light Wave Micrometer is an instrument of exceptional merit, proven over a period of 15 years. It has enabled hundreds of High School boys and girls to produce and inspect parts to "Hundred Thousandths" of an inch.

The new 0 to 3" Light Wave Micrometer has a ½" diameter, 40 threads per inch micrometer screw, which can be made with greater accuracy and which has 3 times the wearing surface of an ordinary micrometer screw. It has an 8" diameter micrometer wheel, with .0001" graduations 1/10" apart. It has a non parallax, vernier index which enables readings to be made to .00001". It has an index lock. It has carboloy tipped anvil and spindle. It is a sturdy, yet sensitive instrument which weighs 17 pounds. It is a portable measuring machine, built for "Sustained Accuracy."

The Light Wave Micrometer is not a comparator. No gage blocks are needed and no errors creep in from worn blocks. It is a direct source of dependable precision—fast, accurate and profitable.



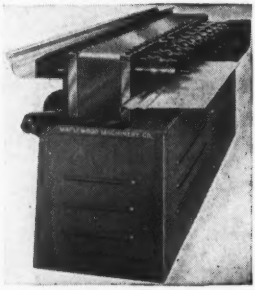
The 208 page Van Keuren Catalog and Handbook No. 34 includes new epoch making formulas and 10 new tables which reduce the computations for the exact measurement of screws to a process of simple division. Your copy will be mailed promptly upon request.

THE *Van Keuren* CO., 175 WALTHAM STREET, WATERTOWN, MASS.

29th YEAR

Light Wave Equipment • Light Wave Micrometers • Gage Blocks • Taper Insert Plug Gages • Wire Type Plug Gages • Measuring Wires • Thread Measuring Wires • Gear Measuring System • Shop Triangles • Carboloy Plug Gages • Carboloy Measuring Wires

Roll Forming Machines and Roller Dies



Also Pittsburgh Lock Machines, Pipe and Elbow, Beading, Turning Machines and all other Sheet Metal Working Machinery—

Your inquiries invited.

Maplewood Machinery Co.

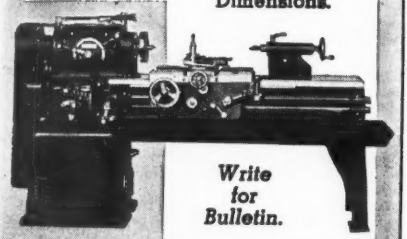
2636 Fullerton Ave., Chicago, Illinois

CARROLL AND JAMIESON LATHES

16"

12 Speed Geared Head Motor Drive Timken Mounted Spindle.

Modern Design—Liberal Dimensions.

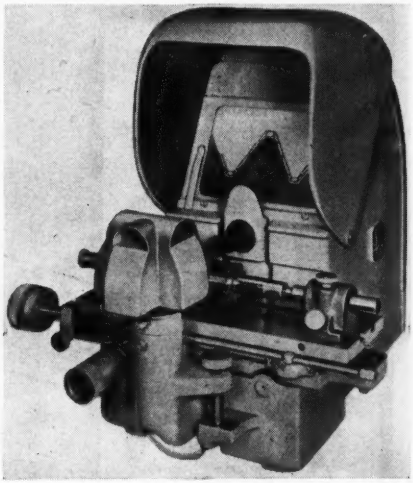


Write for Bulletin.

THE CARROLL & JAMIESON MACHINE TOOL CO.

Jones & Lamson Bench Type Optical Comparator

The Jones & Lamson Machine Co., Springfield, Vt., announces a bench type optical comparator and measuring machine which is available in two basic models with different table assembly combinations, designated as the Models BC-7 and BC-14. The Model BC-7 offers a choice of three table assembly combinations. The BC-7A is equipped with a 12-inch plain table and is used for comparing the magnified shadow of an object with a master outline. This unit is designed to handle objects up to 3 inches in diameter and is particularly recommended for inspecting such parts as knitting needles and sinkers on a production basis.



Jones & Lamson Model BC-7C Bench Optical Comparator and Measuring Machine

The BC-7B has a 14-inch table that can be compounded for inspecting objects with helices, and is intended for the rapid and accurate inspection, by comparison, of screw threads and other irregularly shaped parts up to 3 inches in diameter and 11 inches long between centers. Equipped for making lateral measurements, the BC-7C has a 16-inch table which can be compounded for inspecting objects with helices. Objects up to 3 inches in diameter and 11 inches long between centers can be inspected. This model is particularly designed for inspecting a wide variety of objects such as

SNOW FULL UNIVERSAL TAPPING MACHINE



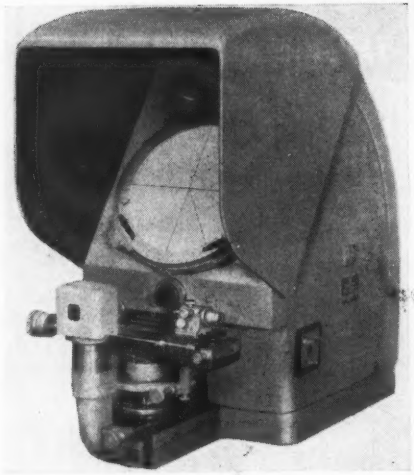
The SNOW Full Universal Tapping Machine is complete with electric controls, motor driven lubricant pump, air operated table lift, and dirt and moisture trap.

All types of air operated indexing and clamping fixtures and jigs can be instantly synchronized with the cycle of the machine. The electric controls provide various types of operation to suit any specific tapping problem. Extreme sensitivity in the application of power eliminates tap breakage, and allows class 3 and 4 fits to be obtained at no loss in production.

Years of experience and thousands of installations enable us to assist you in any of your tapping requirements. Submit blue prints and sample parts for specific recommendations, production estimates, and tooling data.

SNOW MANUFACTURING COMPANY

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Jones & Lamson Model BC-14D Bench Optical Comparator and Measuring Machine

hobs, taps, small tools, threaded parts, calculating machine parts, automatic telephone parts, instrument gages, dental instruments, and so on. The range of magnifications in the BC-7 models is from 5 to 125.

The Model BC-14 with 14-inch diameter screen provides a larger lens field and screen area than the smaller BC-7 models and has four table assembly combinations from which to choose. The BC-14A includes a platform type table, 5 x 10 inches in size, for inspecting, by comparison, a wide variety of objects on a production basis. The table top is situated 5 inches below the center of the lens, thus providing ample space for various work holding fixtures.

The BC-14B has a 16-inch table that can be compounded for inspecting objects with helices and can be elevated 1¾ inches vertically. This model is intended for the inspection, by comparison, of screw threads and other irregular profiles up to 3 inches in diameter and 11 inches long between centers.

The BC-14C has a 16-inch table with 2-inch lateral travel that can be compounded for inspecting objects with helices and can be elevated vertically 1¾ inches. Objects up to 3 inches in diameter and 11 inches long between centers can be inspected. The BC-14D is designed for the complete measurement of tools and products and includes a 16-inch table with 2-inch lateral travel that can be compounded for inspecting objects with

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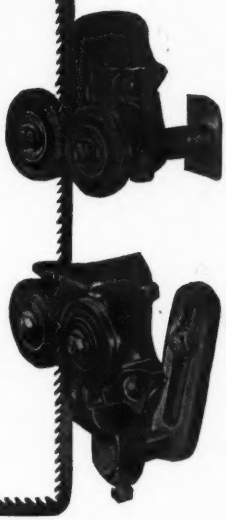
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hold the working portion of the blade as if it were in a frame, free from friction. Inter-changeable wheels running with the blade give strong, smooth, fast support. You save blades—you can cut more materials—PADDOCK GUIDES give perfect operation under all conditions. Sold on ten day FREE TRIAL. Write for circular and price.

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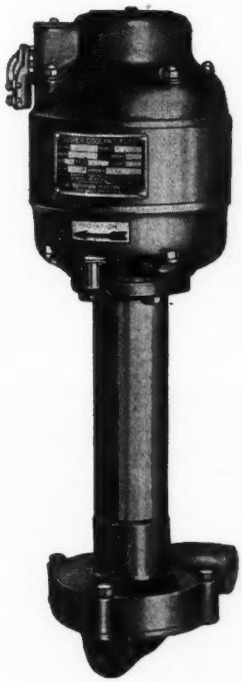
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Morton Rolling Mill Flash Trimmer

helices and elevated 1¾ inches vertically. The chart ring is graduated in degrees and minutes, and the handwheel is graduated in 0.0001 inch. Objects up to 3 inches in diameter and 11 inches long between centers can be inspected. Magnifications in the BC-14 models range from 10 to 100.

Morton Rolling Mill Flash Trimmer

The Morton Rolling Mill Flash Trimmer shown herewith, product of The Morton Manufacturing Co., Broadway & Hoyt, Muskegon Heights, Mich., is designed for use in a continuous process rolling or pickling line. Coils of steel are joined together by electric welding to form a continuous strip which can be passed at a constant rate through the pickling and washing process for scale removal. It is then recoiled into double or triple length coils for economy of handling in the cold finishing processes.

In the welding process, the push-up or forging operation creates an upset at the welded joint which must be removed before passing through the cold reducing mills. The Morton Flash Trimmer is placed in the line adjacent to the Flash welder. The welder strip is quickly moved to the approximate center of the trimmer, which is provided with power horizontal traverse for final alignment of the machine with the weld.

Built in sizes to trim 38 to 120-inch wide sheets, the machine is equipped with opposed clamping jaws which are mounted on the lower and upper housings. The upper housing is moved toward or away from the lower housing by power-driven eccentrics. Thus, since the continuous strip is passed through the machine between the two housings, their movement creates the means for clamping on each side of the weld the full width of the sheet.

Shuttle type rams carrying a multiple number of cutting tools are supported in roller guides in both the upper and lower housings. The rams travel in a path parallel to and a fixed distance from the clamping dies. The tools are individually adjusted for depth of cut in relation to

LUERS

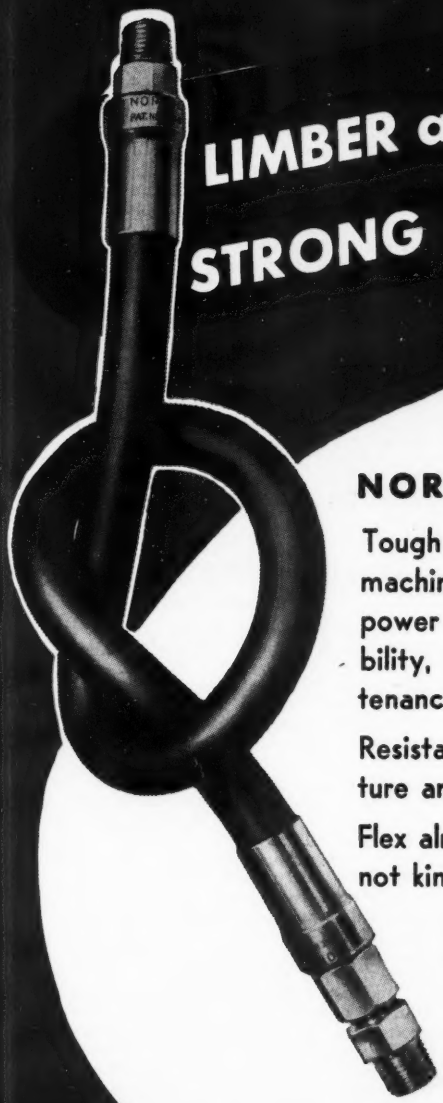
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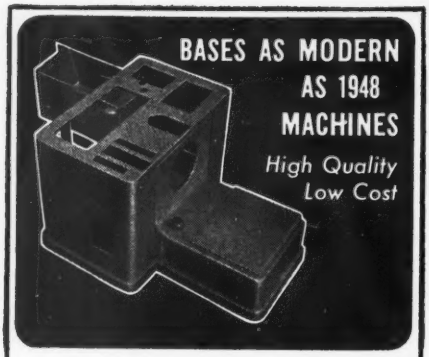
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222 Santa Fe Dr., Denver 9, Colo.

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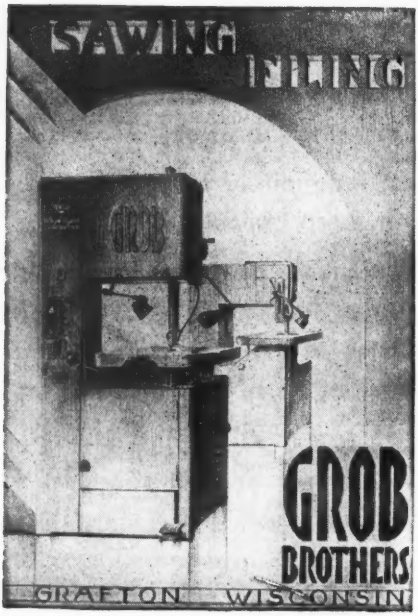


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the clamping dies. Thus, the clamps contacting the strip automatically adjust the cutting tools for variation in gauge or tolerance. The rams are moved across the sheet by unique chain drives which receive their directional motion from a reversible direct connected motor. Lifting rollers moved vertically with the motion of the upper housing lift the strip clear of the dies during the rapid run - off periods.

In operation, the operator stops the weld near the center of the machine and then traverses the machine to final alignment. Pressure on a push button causes the upper housing to lower to the clamped position. When clamped, the rams move automatically and simultaneously across the sheet, cutting the flash. At the end of the fixed travel, limit switches initiate unclamp and ram-return motions. The machine is also returned automatically to its central position of traverse and reset for the next trim while the strip is being run off into the looping pit.

Hardinge WE59 High Speed Precision Lathe

Identified as the WE59, a high speed precision lathe with variable speed drive and free-spindle clutch is announced by Hardinge Brothers, Inc., Elmira, N. Y. The lathe is designed for working to close tolerances and finished specifications in toolrooms, laboratories, and development departments.

Features of the machine include hardened and precision ground steel bed ways of improved dovetail design. The ways form a solid bed top, with the dovetail design protecting the accurate angular ways from falling chips and foreign matter. The lathe bed has a three-point mounting on the welded steel pedestal base, thus ensuring original bed accuracy even when the machine is placed on an uneven floor, it is claimed.

The fully enclosed headstock has a preloaded ball bearing spindle which is ground to accommodate 1-inch capacity 5C Hardinge collets and 6-inch capacity step chucks. The spindle nose is supplied with a Hardinge standard threaded nose for direct application of step chuck closers, jaw chucks, and faceplates. The headstock spindle is driven by center-drive belts. The center - drive construction places the belts between the spindle bearings for balanced bearing spread and equal distribution of belt pull. The belts can be easily replaced without removing any part of the machine.

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ESTABLISHED 1919

W. O. BARNES CO., INC.

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Hardinge WE59 High Speed Precision Lathe

The compound slide rest is securely anchored to the dovetail ways by a patented positive lock which affords rapid positioning of the compound slide rest on the hardened and precision ground dovetail ways. The index slide has a hardened and ground steel section to resist wear. The feed screws are hardened and mounted on preloaded ball bearings for long life and sensitive operations. The index slide can be swiveled 360 deg. The large, easy-to-read, 2-inch diameter feed screw dials are graduated for direct reading in thousandths of an inch.

The ball thrust tailstock spindle is said to have a constant full bearing in the tailstock body regardless of the position of the tailstock spindle. The tailstock body has a mating dovetail section to securely anchor the tailstock to the hardened and precision ground steel dovetail ways. The welded steel pedestal base fully encloses the driving unit and tool storage compartment. The front of the pedestal is arranged for adequate knee and leg room. An adjustable foot rest is provided. The left-hand side of the pedestal base contains the variable speed driving unit and motor. The variable speed control wheel, speed indicating dial, three-spindle clutch, and grinder control switch are all located within convenient reach of the operator.

The variable speed drive provides infinitely variable speeds from 90 to 3,500 r.p.m. The desired spindle speed is ob-



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CLARK

Gives Continued Accuracy, Rapid Measurements

THE CLARK has everything you want in a hardness tester—direct reading precision dial, durable construction, ease of servicing. Three standard models shipped complete with weights, dust protectors, diamond and steel penetrators, test blocks, and anvils.

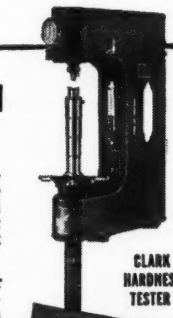
CLARKATOR CHECKS DIAL INDICATORS with micrometer speed and sine bar accuracy. Easy to operate—just four simple steps. Complete instructions permanently fastened to base.



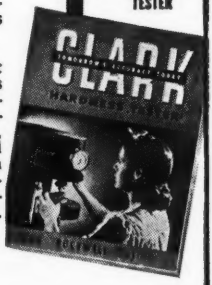
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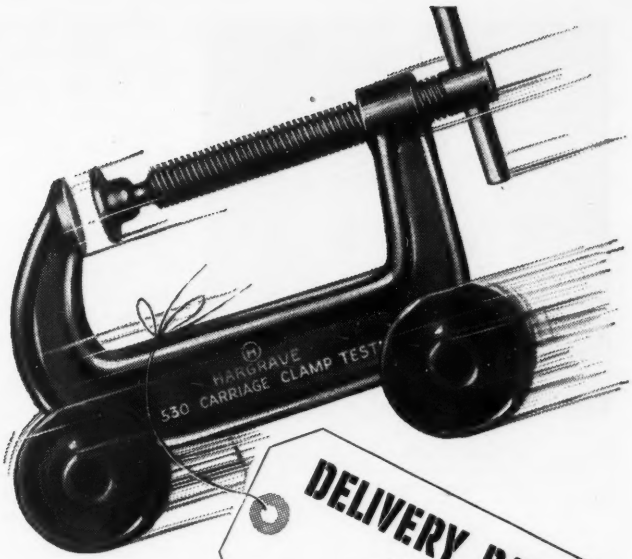


CLARK HARDNESS TESTER

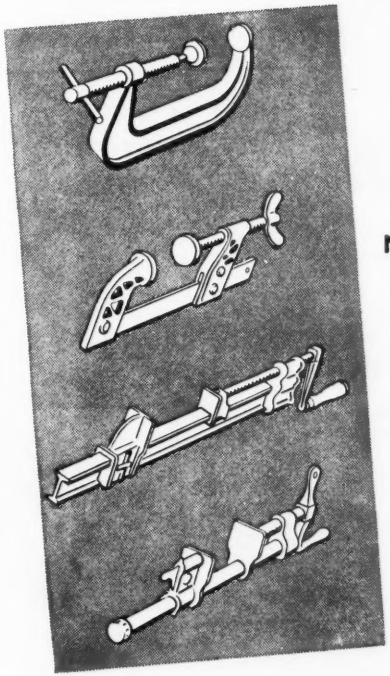


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The Cincinnati Tool Co.



Close-up view of Hardinge WE59 High Speed Precision Lathe showing speed indicating dial, free-spindle clutch lever, grinder control switch, and variable speed drive control handwheel

tained by turning the large diameter handwheel. The handwheel screw actuates the variable speed mechanism, thus affording very fine and positive adjustment of spindle speed. The spindle speed is indicated on the large direct reading dial. The variable speed drive is so arranged that the spindle speed will not vary during operation of the machine, once the speed control wheel has been set. The drive is also arranged so that when the electric motor is shut off, the handwheel is locked and cannot be turned.

The free-spindle clutch is disengaged when the operator requires a free spindle for the balancing and inspection of high precision work. When the free-spindle clutch is disengaged, the entire driving unit is released from engagement with the headstock spindle drive.

For fine precision internal and external grinding on very small diameters, the Hardinge WE59 High Speed Precision Lathe incorporates a conveniently located grinder switch which controls the motor of the high speed grinder attachment. All electric controls are housed in one self-contained electrical panel at the extreme left-hand end of the pedestal. This panel contains quick-make, quick-break, control switches. Overload and low-voltage protection transformers provide 110 volts to the push-button control circuit, pilot light, and terminal block for direct application of the power line.

At the right-hand end of the pedestal



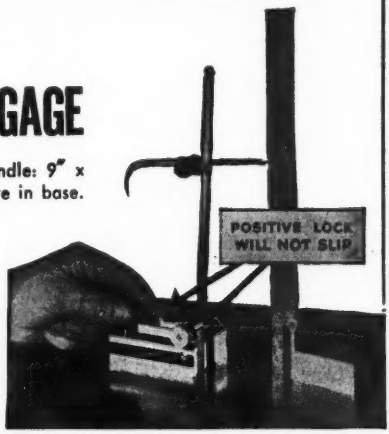
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Plunger moves away from, instead of against the lever, protecting delicate parts from sudden or excessive jolts. Each graduation on scale represents 1/1000" movement of plunger. $6.50

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Drawbolt has positive lock to prevent slippage. Spindle: 9" x 5/16". Block: 3¼" x 2½" x 1" with 90° angle groove in base. $6.00.



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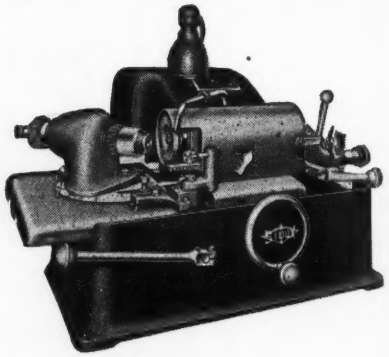
base is a large tool storage compartment, the door of which has a flush-type cabinet lock. The tool storage compartment has a sliding ball bearing collet board and two sliding ball bearing trays for other headstock accessories, as well as one stationary shelf for other tools. The ball bearing collet board and tool shelves bring the attachments out of the pedestal within easy reach of the operator.

Sioux No. 645 Wet Valve Face Grinding Machine

Identified as the Sioux No. 645, a wet valve face grinding machine with quick-acting roller chuck having a capacity of from ¼ to 1⅛ inch is announced by Albertson & Co., Inc., Sioux City, Iowa. The chuck spindle includes a floating aligner having a shoe for holding the aligner in place. A Dowell swivel is provided for the chuck head.

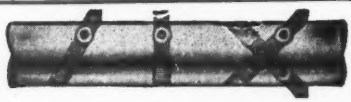
The construction of the Sioux No. 645 Grinding Machine allows for dressing between roughing and finishing. The machine can be used in grinding 15-deg. valves and incorporates a reversible left wheel for extra capacity. All wiring of the machine is concealed in the motor hood which contains a ⅓ h.p. motor that is resilient mounted to absorb vibration.

The rigid grinding head of the machine



Sioux No. 645 Wet Valve Face Grinding Machine

is provided with a cage mounted precision ball bearing which is permanently lubricated. The grinding wheel spindle includes a flat for the use of a wrench in



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OUR fine list of Customers is PROOF that our method of broaching square holes makes a better fit for the tool bit. This means more rigidity and longer life especially with tungsten Carbide. We also make bars for our Type B and Type C cutters or a combination of tool bits and cutters. Bars are made to suit customers' requirements as to method of drive, pilot, number of holes, angle of bit, etc. Our two-bladed cutters can be floated in the bar or held rigidly. Cutters are interchangeable—hence can be ground in an arbor in the tool room and only require a few seconds for inserting in the bar.

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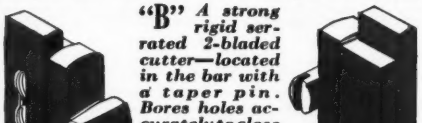
THE DETROIT BORING BAR CO.

688 E. FORT ST. Detroit 26, Mich.

Established 1927

TYPE "B" AND "C" CUTTERS

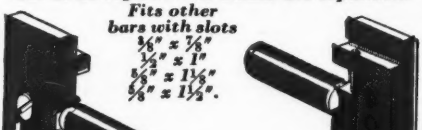
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"B" A strong rigid serrated 2-bladed cutter—located in the bar with a taper pin. Bores holes accurately to close limits. Can be expanded and reground giving long life. Sizes ⅞" dia. up to 6".

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⅜" x ⅞"
½" x 1"
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Ames indicators in any size or dial graduation may be attached. The No. 211 shown is graduated in .0001", has dial reading 0–5–0, and a range of .025"

Specifications

Capacity under contact:	2"	Height, overall:	9½"
Table diameter:	2"	Throat, contact to column:	1½"

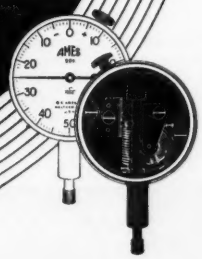
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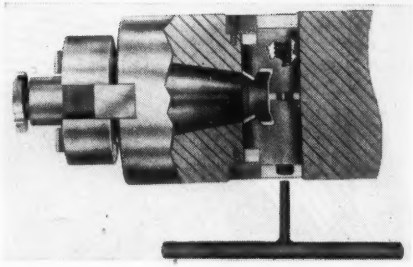
Booth #308 A. S. T. E. Exposition March 15th

changing wheels. Additional features of the machine include coolant control; removable 3-quart capacity coolant tank with self-priming pump; graduated feed screw with self-adjusting dog; valve end grinding attachment and gages; and rocker arm grinding attachment.

The Sioux No. 645 Wet Valve Face Grinding Machine has a net weight of 237 lb. and a shipping weight of 325 lbs.

G. & L. Quick-Change Horizontal Boring Machine Spindle

Designed to provide a positive means for both seating and ejecting shank type cutters, arbors, and adapter without the use of draw keys and drifts, a quick-change horizontal boring machine spindle featuring a steep or fast taper socket and a simple built-in double-acting screw locking device is announced by the Giddings & Lewis Machine Tool Co., Fond du Lac, Wis. The design of the spindle enables the machine operator to readily mount cutting tools by merely inserting the shank of the cutter, arbor, adapter, or boring bar into the spindle opening or socket. The latter has a National Standard taper of the correct size to meet spindle diameter requirements.



Cutaway view of G. & L. Quick-Change Horizontal Boring Machine Spindle showing double-acting screw and wedge lock

The double-acting screw lock consists of two segments and a screw and is located in a special draw slot in the machine spindle immediately behind the taper opening. It is retained in position by hold-down plates bolted into either end of the slot. Seating or drawing in of the shank is accomplished by tightening the single screw of the lock, which has both right and left-hand threads. Drawing the two lock parts together by means of a small T-wrench causes a wedging action between the lock segments and against



The Quick, Easy, Handy Way to TAP BY HAND

The DAHLSTROM TAP GUIDE virtually eliminates tap breakage—and saves those costly hours spent prying broken taps out of dies. Saves time, too. Just a few turns of the handle and the job is done. Winds through continuously, with no back-off. Work is always dependably straight and square.



This handy tapper comes equipped with 7 adaptors, 8-32 to ½", but taps are not furnished. Attaches to any post or bench. 12" x 6" x 14", wt. 28 lbs. At mill supply houses, or from Dahlstrom Mfg. Co., 418 South 6th St., Minneapolis 15, Minn.

SEND FOR FREE CIRCULAR: *"Tap Breakage Reduced"*

Dahlstrom TAP GUIDE

$52.50 F. O. B. Minneapolis



The high standards of Taft-Peirce Gages are maintained year after year by exacting Taft-Peirce *quality controls.* From the raw material to the finished product, each gage is subjected to repeated checks and inspections, thereby assuring, throughout the whole process of production, accuracy, quality of workmanship, and flawless finish.

The complete and up-to-the-minute inspection equipment at Taft-Peirce is among the best in the country, and several constant temperature inspection laboratories are used exclusively for gage inspection.

Taft-Peirce Gages of every kind are manufactured under this rigid system of constant inspection—standard plain and thread plug gages, plain and thread ring gages, and snap gages of all types and sizes, as well as gage blocks and many types of gages for special applications.

Write your gage requirements *today* to the Small Tool & Gage Division of The Taft-Peirce Manufacturing Company, Woonsocket, R. I.

USE TAFT-PEIRCE GAGES FOR EVERY GAGING NEED

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tapered notches cut in the adapter shank. This even distribution of positive locking pressure over the entire surface of the fast taper shank and the mating taper of the spindle socket is said to hold the arbor or adapter firmly in place.

To eject the cutting tool assembly, the lock screw is turned in the opposite direction. A second taper on the lock segment wedges against the mating taper on the end of the arbor or tool shank. The application of minimum pressure with the hand wrench breaks the friction between the contacting surfaces and permits easy removal of the cutter assembly from the machine spindle.

The Giddings & Lewis Quick-Change Spindle may be specified on all new G. & L. horizontal boring, drilling and milling machines. It is also available for G. & L. machines now in use.

Hannifin Electrically-Operated Air Control Valve

An electrically-operated 4-way valve for directional control of the flow of compressed air is announced by the Hannifin Corp., 1101 S. Kilbourn Ave., Chicago 24, Ill. Designed primarily to provide a fast-acting push-button control for small air-operated presses and similar units, the valve also has application as an automatic control for any air-operated unit through the use of limit switches or mechanical stops.

The valve itself is a newly developed "packless" reciprocating disc type, pilot operated and solenoid controlled. The piston is aluminum and the disc is hardened stainless steel. The valve is built in two types. Type I is arranged for double solenoid operation using two push buttons or limit switches. The valve position is determined by energizing the proper solenoid. Type II is arranged for power offset operation using a single push button or limit switch. The valve returns to its initial position when the solenoid is de-energized. Either type is capable of as many as 180 or more operating cycles per minute in handling any air pressure from a minimum of 25 to a maximum of 150 pounds per square inch.

Electrical power consumption is said to be small. The Type I unit is rated at 10 watts, and the Type II unit at 20 watts. The valve is standardly built for 115 volts, 50-60 cycle circuits, but can also be supplied for 230 volts, 50-60 cycle power, or for d.c., low voltage a.c., and other frequencies.

HOW TO GRIND CARBIDE CUTTING TOOL BITS ECONOMICALLY



Here's tool grinding at its best!

Employing 3-step progression—rough, semi-finish, and finish or hone—on one machine, this LeMaire 3-Wheel Grinder produces keener edge in fraction of time. Because tools go to diamond wheels in better condition, life of diamond wheels is considerably lengthened. Both labor and wheel costs are reduced—time is saved—production is increased.

Wouldn't you like to know more about this remarkable 3-Wheel Grinder? Send for descriptive folder.

LeMaire Tool & Mfg. Co. 2657 S. Telegraph Road Dearborn, Michigan

Designers and builders of unit and way type machines for single or multiple spindle drilling, boring, reaming, tapping, etc.—Twin Ram Hydraulic Units—Match-it Gear Chucks.



MORE TAPPED HOLES PER TAP

M-11 is a chrome-cobalt high speed steel used exclusively by Detroit Tap and Tool Company for taps, thread gages and thread milling cutters Some of the reasons for its use are

COBALT . . . Takes human element out of hardening. AUTOMATICALLY UNIFORM HEAT-TREAT . . . also increases "red hardness."

CHROMIUM . Increases toughness and strength. LESS BREAKAGE . . . Deeper, more uniform hardness penetration. SHARPENING DOESN'T CHANGE IT . . . Resists Corrosion. . . Greater abrasion resistance. MORE PIECES PER SHARPENING.

This combination of chromium and cobalt in Detroit Tap's M-11 high speed steel is available to you at no increase in cost over quality taps made of ordinary high-speed steels And back of every M-11 tap, thread gage and thread milling cutter is Detroit's SERVICE — a service which can make the proud claim·

WE'VE NEVER "SHUT DOWN" A LINE YET!!

The Home of
"M-11"
CHROME-COBALT HSS TAPS, THREAD MILLING CUTTERS & THREAD GAGES

DETROIT
TAP & TOOL CO.
8432 BUTLER STREET DETROIT 11 U S A



Hannifin Electrically-Operated Air Control Valve

Compact and streamline in appearance, the valve is offered in three models. The Model NE-37 is tapped for a ⅜-inch diameter inlet and cylinder and ½-inch exhaust pipe connections. The Model NE-50 has a ½-inch inlet and cylinder and ¾-inch exhaust. The Model NE-75 has a ¾-inch inlet and cylinder and 1-inch exhaust.

Veteran "Center Master" Gage

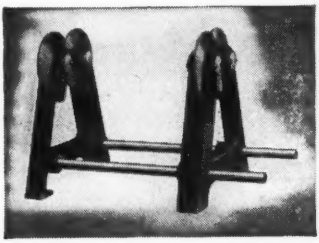
Said to provide an accurate method for checking the sizes of 60-deg. center holes, the Veteran "Center Master" Gage illustrated herewith is announced by the Veteran Machine Works, 511 S. Laflin St., Chicago 7, Ill. The gage is also available in models for checking the sizes of 90 and 82-deg. countersunk holes.

The Veteran Center Master Gage is said to be particularly useful in machining or grinding work when locating from center holes where the overall lengths and the sizes of the center holes must be held to close limits. The gage indicates the diameters of the center holes by a direct indicator reading, with no setup or calculations involved. The direct reading method depends upon a simple principle. When the gage pin enters the center hole, it travels a certain distance, depending upon the size of the center hole. If the indicator measured the actual travel of the pin, it would only show the depth of the hole to a theoretical sharp point.

If you handle Rotating Parts

If your shop handles rotating parts these sturdy and dependable balancing ways would be highly profitable equipment to use. In accurate balancing and truing operations they save time, labor and money. No leveling required.

Four chilled iron disc rotate with minimum friction on sensitive special bearings, giving a quick, accurate indication of whether or not the work is in perfect balance.



ANDERSON BALANCING WAYS

Swing	Distance Between Standards	Capacity in lbs.
20 in.	20 in.	1,000
40 in.	30 in.	2,000
60 in.	30 in.	2,000
72 in.	66 in.	5,000
96 in.	88 in.	10,000

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ANDERSON BROS. MFG. CO., Rockford, Ill.

Balancing Ways, Roto Checkers, Hand and Power Scrapers, Spotters, Hand and Power Hydraulic Straightening Presses.



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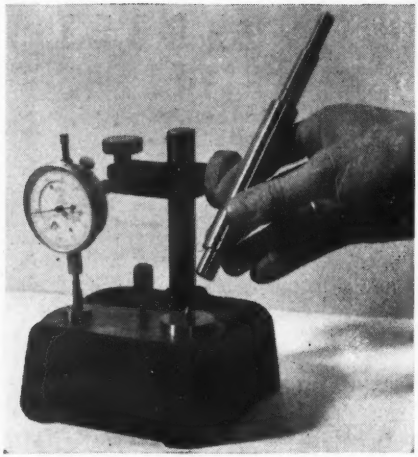
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Veteran "Center Master" Gage

However, the indicator is a predetermined distance farther from the fulcrum of the lever than the gage pin, and the travel of the gage pin is translated from a measurement of depth to a measurement of diameter. The indicator reading, therefore, always provides the actual diameter of the center hole, it is claimed.

Sheffield Automatic Gaging Machine

A gaging machine that is designed to automatically segregate highly finished electric refrigerator valve plates into 27 classifications without marring them has been developed by The Sheffield Corp., Dayton 1, Ohio.

The hermetically-sealed valve plates, each about the size of a half-dollar and twice as thick, are hand fed into the vertical loading stack. A motor-driven slide pushes the bottom plate from the stock into gaging position. By means of airflow jets and Sheffield Airlectric gaging heads, the plates are checked and segregated into three 0.0004-inch classifications of diameter. Each of these three major classifications is further checked and segregated into eight acceptable 0.0003-inch classifications of thickness. Rejected parts are segregated as follows: (1) undersize on diameter or thickness, (2) salvage oversize on diameter, and (3)

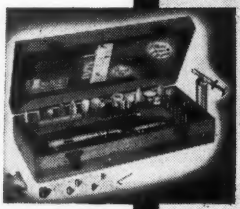
Speed—POWER—PRECISION

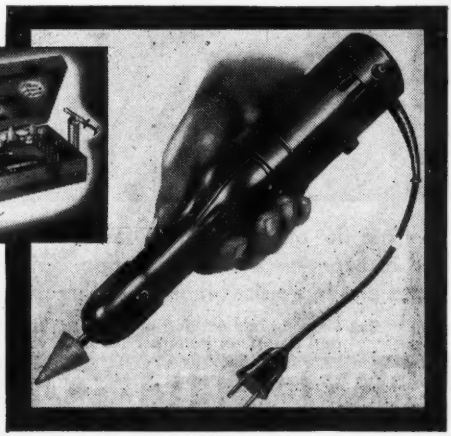
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Built for production. PRECISE 40, the fastest, most powerful electric handtool made, weighs only 40 oz. Use on any material from file-hard steel to bronze, plastics, wood or rubber. Imagine, with tungsten carbide cutters PRECISE 40 *mills* the hardest steel!

PRECISE 40 in cool, shockproof, plastic case operates on AC-DC. Use it as a handtool or as a motorized quill in vise, lathe, mill or on your production set-up. Many accessories and rotary tools available. Also COOL-FLEX Flexible Shaft attachment with 9-oz. air-cooled handpiece.

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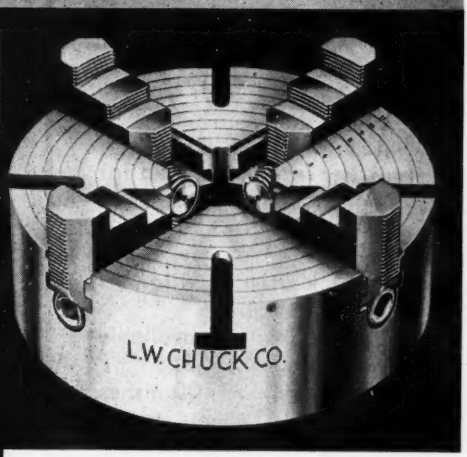
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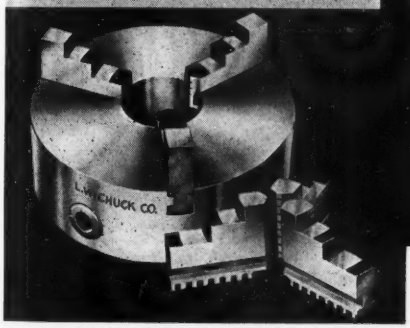
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For light or heavy duty work. Guaranteed to run true. High grade steel geared scroll and pinions.

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PRECISION SHIM STOCK

in special dispensing cartons



Brass or steel.

Rolls (6 x 100 inches) in cartons specially designed for easy handling and simplified stocking.

All packages plainly marked for quick identification of gauge and material.

Rolls in cartons available in gauges up to .012.

Flat sheets . . . 100 inches in four 6 x 25 sheets . . . in heavier gauges up to .032 are packaged heavy-duty envelopes. No flattening of heavy stock required.

The complete line is handled by recognized industrial distributors.

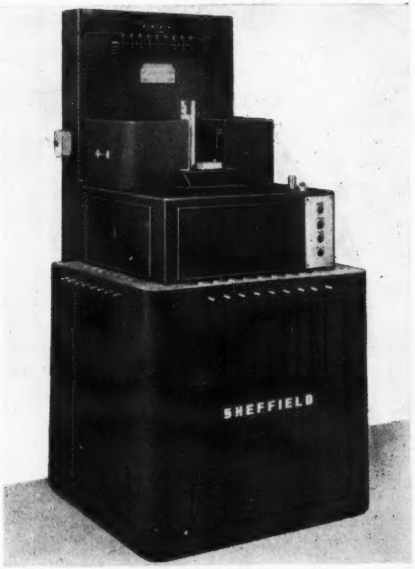
3006

Laminated Shim Co., Inc.

59 Union St., Glenbrook, Conn.

salvage oversize on thickness. The rate of inspection is 3,000 plates per hour at 100 per cent efficiency.

Each plate proceeds through the gaging mechanism and down through gently sloping chutes to the proper receiving station where it slides onto the last part entering that station. Twenty-five such receiving stations are provided, in addition to the two rejection chutes. As the plate enters the receiving station, as escapement mechanism lowers the receiver one notch, thus permitting the next part



Sheffield Automatic Gaging Machine

to slide onto the top part without any damaging drop. Each receiver has a capacity for 100 parts. When the hundredth part enters the receiver, the machine automatically stops, thereby permitting the operator to manually unload the station.

Wales Type "EJ" Hole Punching Unit

Announcement of a heavy duty hole punching unit designated as the Wales Type "EJ" has been made by the Wales-Strippit Corp., 345 Payne Ave., North Tonawanda, N. Y. The design of the unit includes a center projection to carry the

"Single-edge 'Blu-Mol'* blades are helping us set new cutting records"

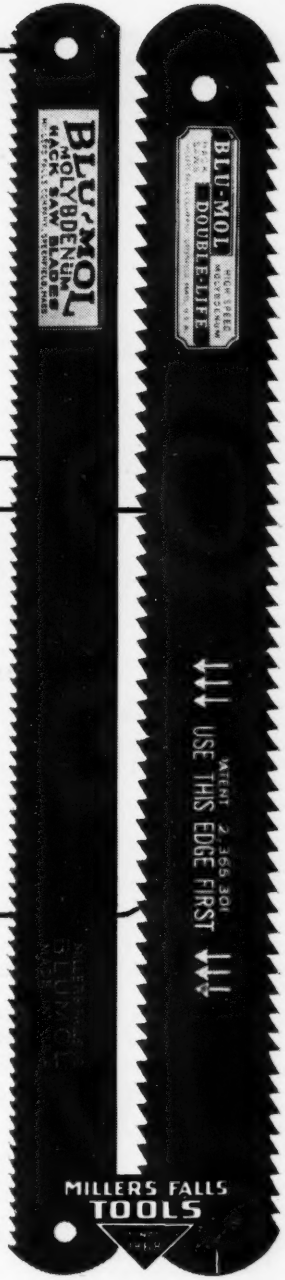


Shops where the majority of cutting is in hard, tough steel, are using "Blu-Mol" High Speed Blades with remarkable results. They are getting outstanding performance, accurate cutting, and economy from these high speed molybdenum blades . . . faster, truer, tougher cutting that pays dividends.

"'Blu-Mol Double-Life'* blades give us rock-bottom cutting costs"



"Blu-Mol Double-Life" High Speed Blades are the choice of shops where cutting conditions are carefully supervised and controlled. In forge shops, for instance, where blades must stand up while cutting billets day after day, "Double-Life" blades are giving the lowest cost per cut of any blade ever produced! With a double-edge blade you actually get twice as many cuts at a cost only 50% greater.



FREE DEMONSTRATION

Ask your "Blu-Mol" distributor to show you how "Blu-Mol" single-edge and double-edge blades work with the "Tensiometer",* a simple, compact constant-tension device that can be used on any machine. You'll see clean, true cuts . . . amazing blade life.

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MILLERS FALLS COMPANY

GREENFIELD MASSACHUSETTS

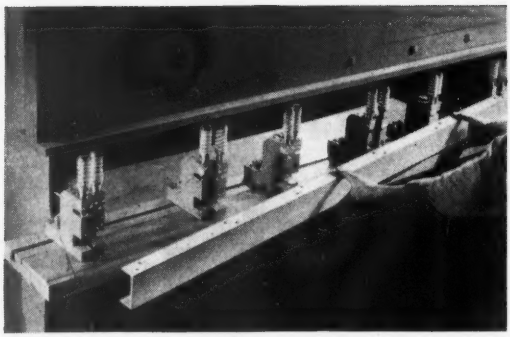


Illustration showing a staggered setup of Wales Type "EJ" Hole Punching Units on a "strip" template, with the work punched in the foreground

die and which may be located to punch a series of holes simultaneously in angles, channels, and extruded shapes.

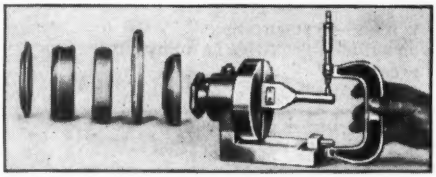
According to the manufacturer, the Wales Type EJ Hole Punching Unit is self-contained and does not have to be attached to the ram of the press in which it is used; the ram functions only to depress the punch. All functioning parts—punch, guide, stripping spring, and die—are built into a holder which automatically aligns the punch and die. In operation, the full-floating punch located in the top of the holder is depressed by the press ram and is guided through the work and into the die by means of a long guide. On the downstroke of the ram, the stripping spring is compressed and on the upstroke the spring expands to strip the punch from the work.

For "strip" template method setups, hole locations are drilled and reamed in the "strip" template for the pilot pin. These templates are combined pattern and base plates which permit the strip templates not in active use to be stored for future runs, while the group of Type EJ units which has been removed is kept in continuous operation on other strip templates. The templates are interchangeable in the press brake rail in order for the rail to remain in the press brake throughout all production runs using Type EJ hole punching units.

TALLMAN

RADIUS EMERY WHEEL DRESSER

Concave radii dressed up to 2½"



Convex radii dressed up to 1⅜"

To dress a .250" concave radius raise diamond holder .250" above center. Lower diamond holder .250" below center for .250" convex radius. Pass diamond across face of wheel by rotating spindle with hand wheel, running wheel away from spindle.

An inexpensive dresser for precision performance.

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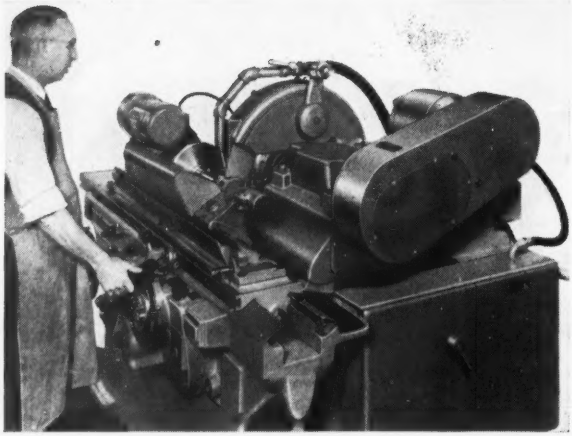
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B & S Plain Grinding Machine with 10-Inch Swing

B & S Nos. 10 and 12 Plain Grinding Machines with 10-Inch Swing

To provide clearance for work with unusually large diameters and projections, the Brown & Sharpe Manufacturing Co., Providence 1, R. I., is now manufacturing its Nos. 10 and 12 plain grinding machines with a 10-inch swing. The 10 x 18 and 10 x 30 inch machines are designed for the rapid cylindrical grinding of small and medium size parts to close limits on a production basis and, it is claimed, can be used to grind many parts to limits of 0.0001-inch tolerance with consistent uniformity on ground diameters up to 3 inches.

Once set for a given production job, each machine can be operated entirely by only two controls; namely, the cross-feed handwheel and the table start - stop knob. The grinding wheel spindle design is said to assure rapid, trouble-free precision grinding. Spark-out time is said to

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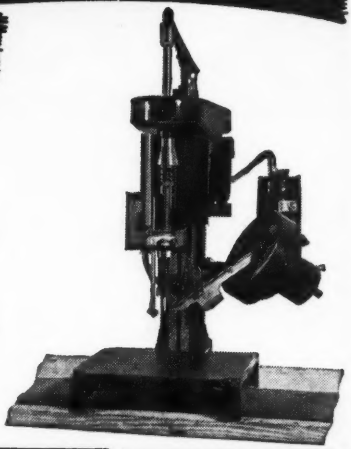
Yes, substantial profits through reduced costs and increased production. That's what you gain by using these popular, highly efficient machines—proven through years of constant use.

MODEL A PICTURED

Drives screws from No. 2 x 1/8 to No. 6 x 3/4. A real production machine; drives screws at the rate of one second each. Will not mar screw heads or strip threads. TWO OTHER MODELS, driving screws from No. 6 to 5/8.

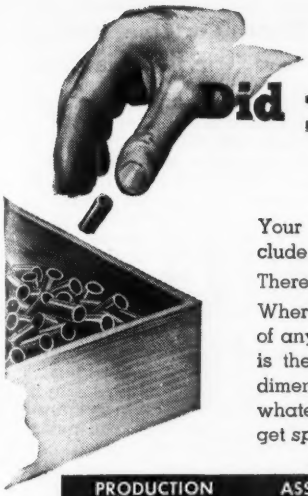
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See us at Booth 913, Tool Engineers' Industrial Exposition, Cleveland, March 15 to 19 inc.



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Did you ever sell SCRAP at a profit?

Your scrap pile holds more than metal. Its costly contents include your dead losses in time and labor operations.

There is an answer to this... Stop making the parts that won't fit!

Wherever you have a production problem involving a dimension of any kind, you have a use for a Dial Indicator Gage. . . . This is the *modern* inspection method that enables workers to *see* dimensions, instead of feeling for them. You get *accuracy* — to whatever degree your work requires. Equally important — you get *speed*.



Old-fashioned gaging methods permit too much scrap loss



Dial Indicator Gaging cuts seconds and rejects to a minimum

For example — as pictured at the right — a Dial Indicator permits gaging while grinding, makes possible continuous precision measurement without stopping the machine. This prevents out-of-round, oversize and undersize pieces — reduces inspection time — saves the time formerly needed for resetting sizing controls after wheel dressing. The Arnold Gage, with various accessories, accurately gages outside diameter, inside or outside widths between faces of shoulders, tapered diameters, and work having splines and keyways. For full details, please write for illustrated Bulletin **No. 14.**



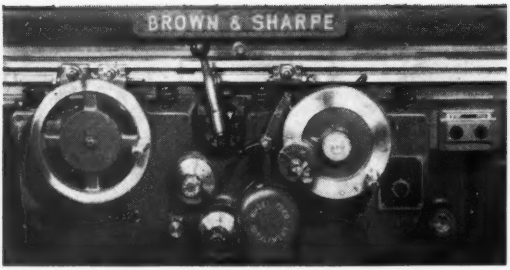
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YOUR PROFIT DECISION IS *Visible PRECISION**

***The use of Dial Indicator Gages—visible precision—lowers inspection costs, raises production. Federal Products Corporation is America's largest maker of both standard and custom-built gages—mechanical, air, electronic—for the measurement of single and multiple dimensions.**



Close-Up View of Controls of B & S 10-Inch Swing Plain Grinder

be reduced to a minimum due to the unusually small clearance between the spindle and its boxes. Correct adjustment of the spindle boxes can be quickly and positively effected with the spindle running.

Additional features of the B & S 10-Inch Swing Plain Grinding Machines include time-saving knob controls, individual motor drives, cross-feed mechanisms with adjustment to 0.0001 inch on diameters, and automatic oiling.

Marsh Portable Turning and Grinding Machine

A portable turning and grinding machine announced by C. E. Marsh, 2092 McKinley Rd. N.W., Atlanta, Ga., is designed to return and finish by grinding end journals and crankpins on any heavy duty machinery in the power house, industrial plants, paper mills, textile finishing plants, and locomotive repair shops without having to dismantle heavy machine parts to send to a shop to be machined. The machine is precision built of selected materials to provide for long and dependable service, and includes a cylinder revolving on a stationary spindle. The revolving cylinder has adjustable bearings to compensate for wear and is driven by alloy steel heat-treated gears enclosed in a grease-tight case. The cylinder is equipped with a sliding tool bar having adjustable bearings located on each end of the cylinder and features built-in feed gears and shafts.



This Evans adjustable CHUCKING REAMER ASKS NO FAVORS

It takes tough jobs in stride . . . improves upon the performance of any standard reamer without changing set-up. Spiral blades ream a smooth finish in one operation, even when finishing holes with keyways, slots or grooves. Straight line expansion prevents springing or stressing of blades—allows use of full expansion range. Wear is evenly distributed . . . operation is smoother and faster...blades last longer. Write today for full information and prices.

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FISKE'S NO. 231 DIE CASTING COMPOUND produces clean, smooth pieces, free from surface imperfections and discoloration. Through minimum gas formation, stronger and more accurate castings result. More passes between applications hence greater production. Gives longer die life. Does not fume, flash or solder. Application by brush, swab or spray. Suitable for large as well as small aluminum and zinc alloy castings. Write for full information.

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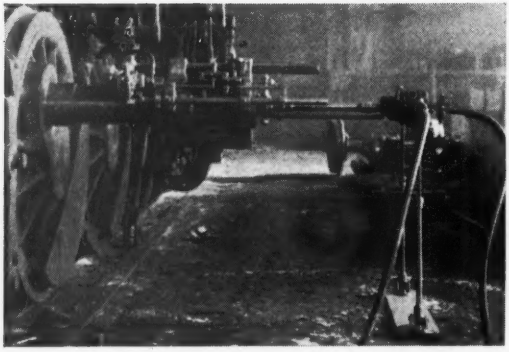
Metal Working

LUBRICANTS

FISKE BROTHERS REFINING COMPANY

Established 1870

NEWARK 5, N. J. **TOLEDO 3, OHIO**



Marsh Portable Turning and Grinding Machine set up with grinding attachment on locomotive crankpin

The spindle is tapered and adjustable for wear, and is fastened to the end of a shaft journal or crankpin by an adapter which is fitted to the end of the spindle in the same manner as a lathe chuck or faceplate. Adapters can be furnished to adapt the turning machine to any style or type end journal or crankpin.

The sliding tool bar has a traverse movement of 20 inches, or more if required, the end of the tool bar being designed to accommodate a detachable tool-holding head for the high speed steel turning tools. The tool head has a hand screw downfeed. The grinding wheel head is detachable and is mounted on the tool bar in the same place as the tool head when the turning tool is detached from the tool bar. The tool bar has two gear-driven automatic feeds which are reversible—a hand operated rapid traverse to place the tool or grinding wheel at a cutting position or to withdraw same at the end of a finish cut.

The grinding head is equipped with a 2 h.p. air motor built into the head and, when attached to the tool bar, is supported by an auxiliary sliding bar which is fastened to the grinding head with an adjustable connection that permits a fast adjustment of the grinding wheel to journals from 4 to 12 inches in diameter. A hand downfeed is provided to feed the grinding wheel for precision work. The

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TOOL STANDS OF STEEL

These "Hallowell" Tool Stands of sturdy, all-steel, welded construction are equipped with free-rolling casters, which enable you to keep your tools with you as you move from job to job, and they provide long, trouble-free and time-saving service. The steel drawers, as shown, can be locked to protect your tools. They are available with two drawers as illustrated at right . . . with one drawer . . . or without drawers, depending on your needs.



Fig. 1855

"Hallowell" Products are sold entirely through Industrial Distributors.

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***2* Standard blanks**—The catalog suggests lots of uses for the many blanks it lists. Use them for cutting-tool and wear-resistant jobs. Most-used styles and sizes are locally stocked in industrial areas for prompt delivery.

***3* Wear-resistant parts**—A surprising range of wear-resistant uses for Carboloy. Some of the 100 examples illustrated might help you to some money-saving application of this low-cost, long-life miracle-metal in reducing wear on your machine parts or products.

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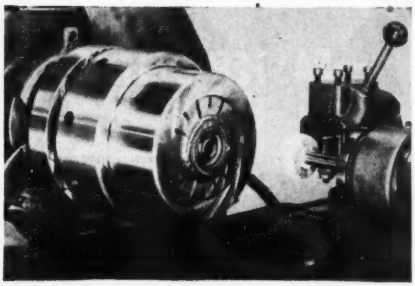
auxiliary sliding bar is equipped with feed stops to stop the feed at any determined part of a journal. The built-in air motor for the grinding wheel is driven by compressed air supplied from a collector unit on the end of the machine spindle and through a telescope pipe line to the motor that feeds out with the tool bar.

The revolving cylinder of the turning machine can be driven by any standard make air drill motor used as regular equipment for maintenance work in power houses and industrial plants. An electric drill motor also can be used.

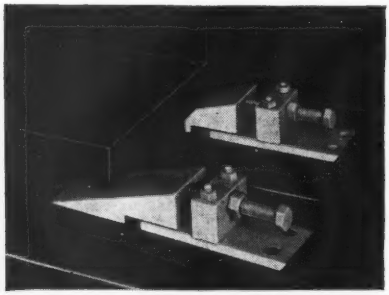
The Marsh Portable Turning and Grinding Machine is designed to turn and finish grind end journals and crankpins from 4 to 12 inches in diameter and any length from 0 to 20 inches. The machine weighs approximately 450 lb. A steel box with hinged top covers that can be locked mounted on four truck wheels to provide storage for the turning machine and regular equipment air motor and air hose can be furnished as extra equipment. The steel box is equipped with a swivel hoist for use in attaching or mounting the machine on the work to be turned and for removing the machine when the work is completed.

Erickson Model No. 901 Pull Chuck

The development of a special pull chuck designated as the Model No. 901 is announced by Erickson Tools Division, 2309 Hamilton Ave., Cleveland 14, Ohio. The accompanying illustration shows the chuck mounted on a Heald Gagematic.



Erickson Model No. 901 Pull Chuck Set Up for Use



LEVELED & SQUARED—NO SHIMS REQUIRED
Made in 3 Sizes

Place Jack under job and turn adjusting screw until desired height and level is reached. Eliminates all guess work. No more time lost looking for shims and wedges that are never the right size.

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THE ONLY JACK THAT STARTS FROM ZERO

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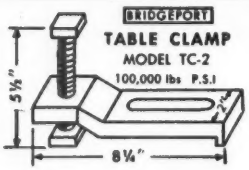
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Fast Set-ups—Saves Labor
Eliminates Use of Shims
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Precision Aligning
Sturdy and Tough

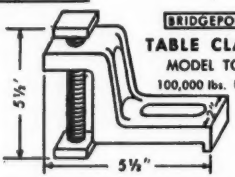
Send for Descriptive Material

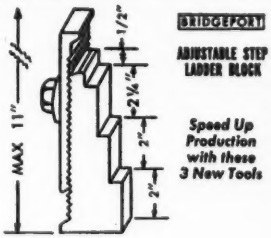
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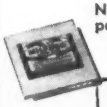
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MILFORD THE HENRY G. THOMPSON & SON CO.
Saw Specialists Exclusively for Over 70 Years
New Haven 5, Connecticut U.S.A.

The chuck is designed to operate by means of the standard drawbar mechanism of the machine, providing a rapid change of parts for precision grinding.

A standard Erickson precision chuck is employed in the construction of the Model No. 901 pull chuck, which has a range of 5¾ to 3⅞ inches in increments of $\frac{1}{32}$ inch and is said to be ideal for use wherever very close tolerances must be maintained.

Wendt-Sonis Long Shank Masonry Drill

A long shank carbide-tipped masonry drill which is said to be suitable for drilling through wall partitions, concrete floors, and all types of masonry construc-



Wendt-Sonis Long Shank Masonry Drill

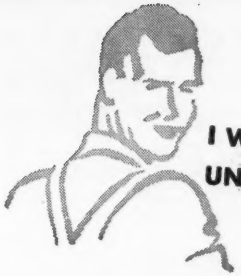
tion has been announced by the Wendt-Sonis Co., Hannibal, Mo. The diamond shape of the tool is claimed to provide ample clearance to allow the hole to clean as it is drilled.

The Wendt-Sonis Long Shank Masonry Drill is available in sizes from ¼ to 1½ inches in diameter and 6 to 18-inch lengths. Drill shanks are treated to prevent rusting.

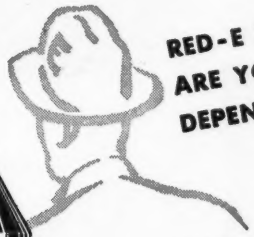
DoAll Spiral Saw

Designed for cutting metals, plastics, and so on, a saw blade having a hard cutting edge which spirals around the band, thus providing a 360-deg. cutting edge so that the material can be cut in any direction without rotating the work, has been developed by The DoAll Company, Des Plaines, Ill. According to the manufacturer, the hardened tooth spiral of the band makes it ideal for the cutting of intricate dies. The saw can also be used for filing small radii in openings.

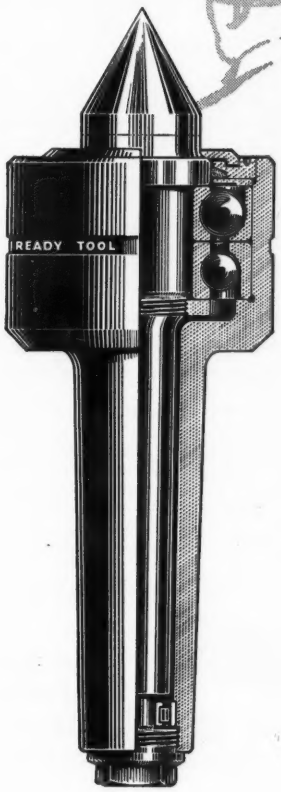
The DoAll Spiral Saw is available in two sizes of 0.040 and 0.074-inch diameter with 15-tooth pitch, and may be obtained in cut lengths or 100-foot coils. For internal sawing operations, the blade can be easily welded on conventional butt welders.



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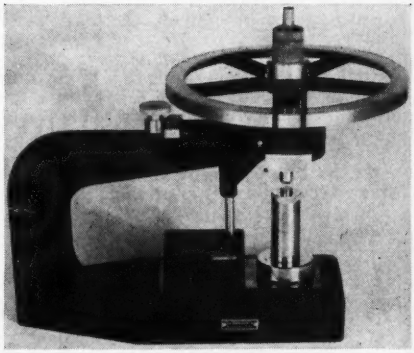
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Van Keuren O-3 Light Wave Micrometer

The Van Keuren Co., 176 Waltham St., Watertown, Boston, Mass., announces a 0-3-inch light wave micrometer which features a specially designed ½-inch diameter, 40 threads per inch, heavy duty precision micrometer head; 8-inch diameter micrometer wheel with 0.0001-inch graduations; vernier index reading to 0.00001 inch; enclosed light wave pressure indicator; index lock; non-parallax glass index; large diameter spacer blocks; heavy sub-anvil; removable and self-aligning Carboloy anvil and spindle contacts; and unusually heavy and sturdy frame.



Van Keuren 0-3-Inch Light Wave Micrometer

According to the manufacturer, the micrometer, with its calibration chart showing the accuracy of the vertically mounted precision micrometer screw, is a portable measuring instrument which is designed to provide measurements accurate to 0.00001 inch without the use of gage blocks or other reference standards.

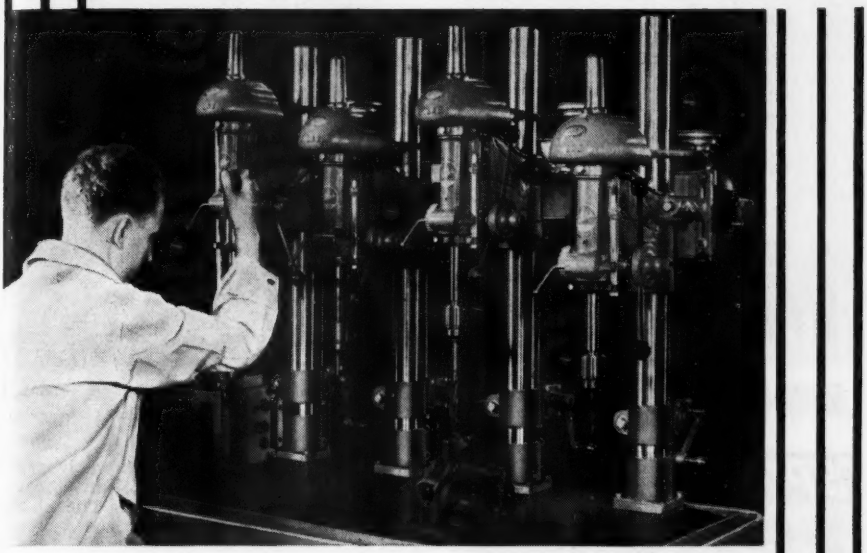
Dayton Rogers Hydraulic Overload Punch Press Pitman

A hydraulic overload pitman with automatic cutout which is said to automatically stop the operation of a punch press in the event of overload is announced by the Dayton Rogers Manufacturing Co., 2835 12th Ave., S., Minneapolis 7, Minn. According to the manufacturer, the pitman not only protects the punch press frame and crank, as well as the tools, from damage in the event of overload but

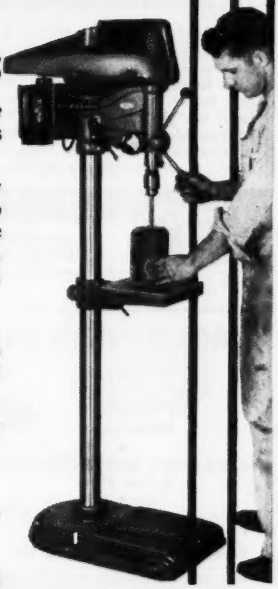
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Massive precision-ground oil tables give you plenty of smooth working surface. Drill heads feature two Atlas "exclusives"—4-bearing "floating drive" spindle and unique head-positioning mechanism—for easier, smoother, high-speed precision operation. Made in 2, 3, and 4-spindle models.

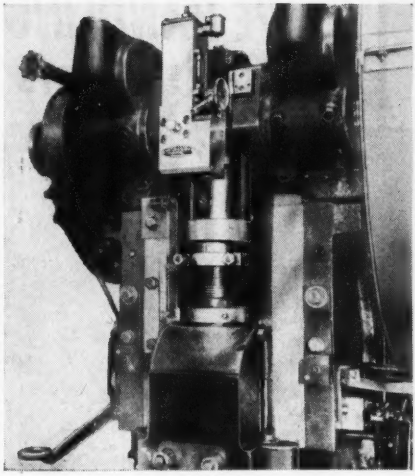
Also, check Atlas 15" Floor Model Drill Presses . . . solid, low-cost, precision-built . . . readily adaptable to countless production requirements. They're real time and money savers too.

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ATLAS PRESS CO.
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is also arranged to automatically disengage the punch press clutch mechanism as soon as the overload occurs. This arrangement is said to be very advantageous on automatic high production operations involving the use of ratchet dial feeds, ejecting feeds, magazine feeds, pneumatic feeds, high production roll feeds, and other synchronized high speed production operating devices.

The Dayton Rogers Hydraulic Overload Pitman is provided with a limit switch which remains open as long as the pitman is in a normal working position. In the event the dies of the press become jammed by the introduction of two or three pieces into a given work station, the pitman and ram retreat, thereby automatically closing the limit switch. The closing of the limit switch energizes a solenoid and provides for the opening of a 3-way valve which, in turn, energizes the power air cylinder. The air cylinder is arranged so as to trip the linkage mechanism which automatically disengages the press clutch and brings the press to a definite stop before the next work cycle of the press crank. This arrangement is said to in no way interfere with the intermittent operation of the press; however, when the press is to operate continually, the press tripping lever is simply depressed. Should additional load be introduced on the press ram at any time, the hydraulic overload pitman automatically



Dayton Rogers Hydraulic Overload Pitman Installed on a Punch Press

M·B Model S-VT 18,000 RPM



"SPEE-DEE" Pneumatic POLISHER

A new development filling a distinct need. Produces remarkable results on real production work when abrasive rolls and pencils, also bands, etc., are used. Flexible air-control lever for starting and stopping. Husky, light weight, 14 oz. Power to spare. Special grease-sealed bearings. Will handle many applications, also with "High-Speed" Rotary Files. *Representatives in Principal Cities.*

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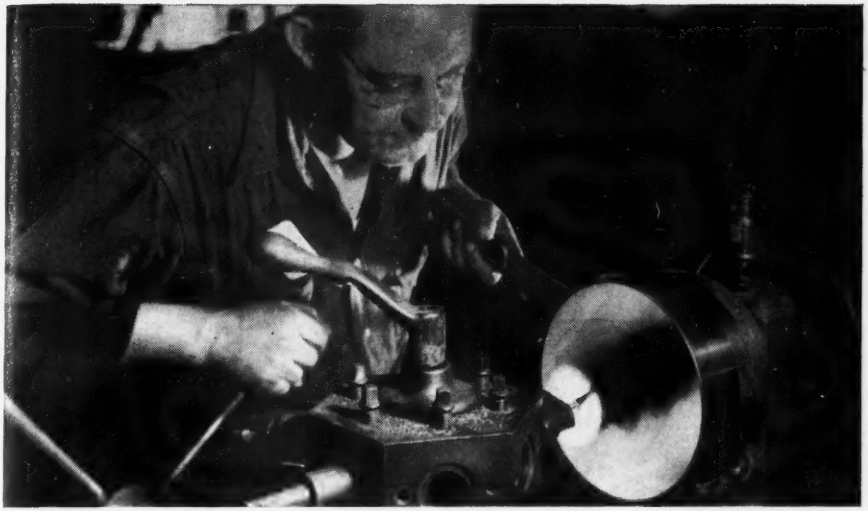


HIGH SPEED STRAIGHT SHANK
9 Inch Flute

Immediate Delivery

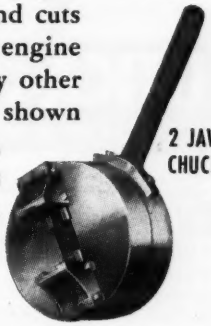
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will pay for itself in 60 to 90 days on production schedules by giving MORE parts per hour at a LOWER cost per part. Most round parts can be set in the Barker Wrenchless Chuck without stopping the machine. It saves time, helps speed up production, is simple to operate, reduces operator fatigue and cuts spoilage where the run is continuous on turrets, engine lathes, cutting off machines, drill presses or any other type of chucking machine. The Barker Chuck shown above, replacing an ordinary 3-jaw chuck, jumped production from 18 to 24 pieces per hour. It can do it in *your* plant too. Let us show you how!



3 JAW CHUCK



Write for bulletin 201 today.

Chuck Division

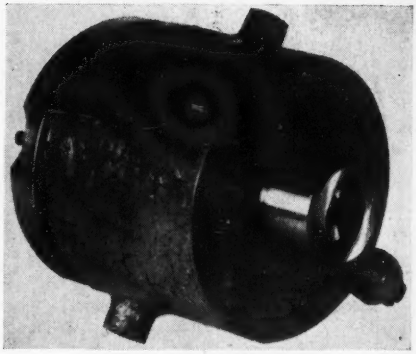
THOMAS HOIST CO.

28 S. HOYNE CHICAGO 12

retreats and provides the press and tools the necessary protection by instantly stopping all crank motion.

Erickson No. 101-AT Air Chuck

The Erickson Tools Division, 2309 Hamilton Ave., Cleveland 14, Ohio, announces the addition to its line of air-operated chucks of an air chuck having a range of from $\frac{1}{16}$ to $\frac{1}{4}$ inch in increments of $\frac{1}{32}$ inch. Designated as the No. 101-AT, the chuck can be adapted to many light machining operations, such as buffing, polishing, and so on, and is easy to operate, only a hand or foot valve being required.



Erickson No. 101-AT Air Chuck

An unusual application reported for the Erickson No. 101-AT Air Chuck is as a pick-off attachment on an automatic grinding machine wherein the workpiece is held firmly in order that the cut may be completed without leaving a burr at the center. A standard type Erickson precision collet is employed. The chuck is also claimed to be particularly useful in the holding of thin-wall tubing firmly and without distortion due to the uniform collapse of the collet throughout its length.

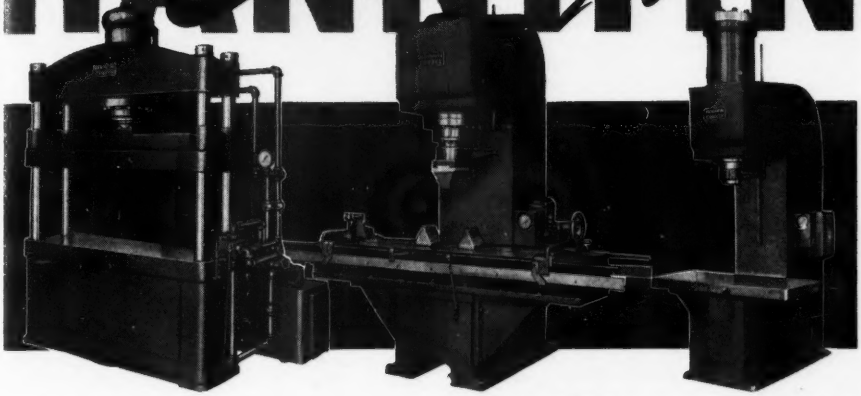


"Shopcraft" Power Accessories

A line of power accessories, including die cast pillow flanges, collars, and V-belt sheaves, as well as circular blocks, saw and grinding wheel mandrels, is now being marketed under the trade name "Shopcraft" by O. F. DeCastro and As-



HANNIFIN



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COLUMN PRESSES
48 Standard Models

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HYDRAULIC PRESSES

HERE'S help for production men who want presses in a hurry! Hannifin now offers a complete *standardized* line of open gap and column type hydraulic presses in a full range of capacities from 6 to 150 tons. Out of this line, it's easy to select the press you need for forcing, straightening, forming, assembling, broaching, and similar operations requiring fast, accurate production with exceptionally smooth application of pressure. Hannifin gives you everything you want — modern *"JOB-TESTED"* designs . . . precision-built working parts . . . advanced control features . . . every operating convenience! Engineering recommendations on request.

NEW BULLETIN

Lists 75 different standard models

● Get your copy of this new catalog! It contains detailed information on the design and construction of Hannifin's Standardized Hydraulic Presses together with specifications and dimensions for 75 different standard model presses. Ask for Bulletin No. 130-I.

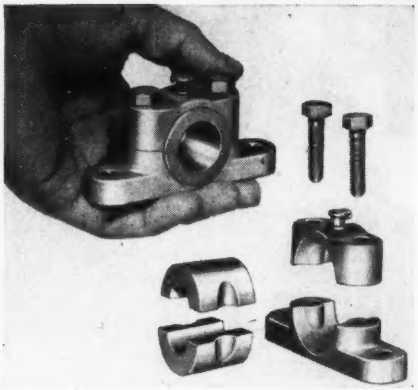


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sociates, 674 W. Washington Blvd., Los Angeles 15, California.

The pillow blocks each include a split cap which is firmly bolted into position with $\frac{5}{16}$-inch cap screws. A spring-top oil cup it fitted to the bearing cup, thus providing an oil reservoir for bearing lubrication. Split bearings are cast separately and are furnished as replaceable inserts in both Zemac metal and bronze. They are reamed to size while clamped in a fixture and, after becoming worn in service, may be readily replaced. The pillow blocks are uniform in size, with bearing inserts available in bore diameters of $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and 1 inch. Shaft diameters may thus be quickly altered simply by changing inserts and without disturbing the location of the housings.

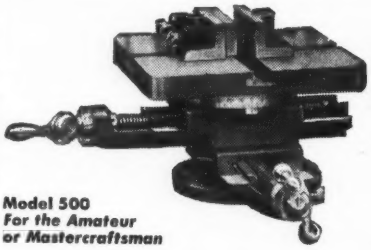


"Shopcraft" Pillow Blocks

The steel mandrel assemblies are available in two types; (1) threaded at each end in right and left-hand threads suitable for double-wheel applications, and (2) threaded at one end only for use on circular saws or similar single wheel applications. The mandrels are available in diameters of $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, and $\frac{7}{8}$ inch and overall lengths of 12, 14, and 16 inches. Single 2-inch O.D. V-belt "A" section pulleys and $1\frac{3}{4}$-inch flanges are similarly die cast and bored for mandrel sizes listed above.

Shopcraft Accessories are said to be suitable for all jackshaft applications, for grinding, buffing, sawing, and speed reducing, and wherever shafting is required. The accessories can be obtained as units or as complete assemblies.





Model 500
For the Amateur
or Mastercraftsman

MASTERCRAFT ROTARY TABLES

The Mastercraft Drill Press and Milling Table conforms to the exacting standards of best machine tool construction. A great time saver. Cuts keyways, special shapes, splines and innumerable other forms, and drills on a dead straight line or on a radius.

Write for circulars describing this model and 600, 700 and 800 Series for heavier work.

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9" DRILLING AREA
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- Quick, easy adjustments to **any** hole pattern on or within a 9" circle; ½" minimum center distances; Drill sizes 1/32" to 3/8"
- Special adaptations available.

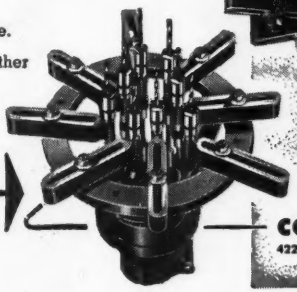
MULTI-DRILLS are made in other sizes and models.

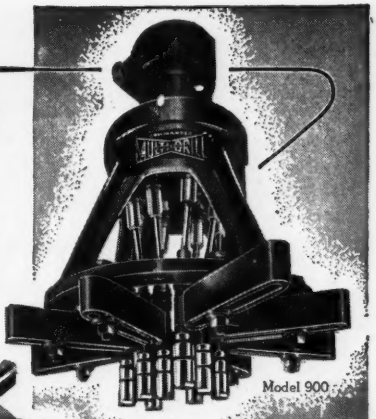
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Locater arms are designed for fast, easy adjustment

Dependable Performance... proven by industry



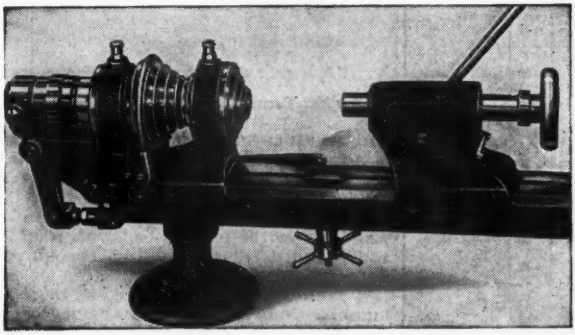


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FITS ANY DRILL PRESS

COMMANDER MFG. CO.
4224 W. KINZIE STREET, CHICAGO 24, ILLINOIS

DERBYSHIRE *Fine Precision Instrument* LATHES



FOR INSTRUMENT AND WATCHMAKING

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● *Illustrated* ● CAPACITY .315" ● BED 12" ● SWING 3.94"
MAGNUS BALL-BEARING LATHE ● COMBINATION TAILSTOCK
SPRING-BIND COLLET CLOSER ATTACHMENT.

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NOW QUALITY CARBIDE TIPPED REAMERS IN THE H.S.S. PRICE RANGE

Low prices on the new line of Wendt - Sonis SPE-D-CUT reamers are made possible by standardizing on straight shank styles and size ranges most widely used. Tools are designed to highest standards with precision tolerances (.0005 on dia.) and diamond lapped cutting edges. All sizes are in stock. Get increased production possible with SPE-D-CUT carbide reamers at an initial tool cost only slightly higher than H.S.S. WRITE for catalog sheet on SPE-D-CUT reamers! WENDT-SONIS Co., Hannibal, Mo., 580 N. Prairie Ave., Hawthorne, Calif., 1361 W. Lake St., Chicago, Ill.

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Straight Shank — Straight Flutes

Diameter Inches	Number of Flutes	Shank Diameter Inches	Over-all Length Inches	PRICE
1/4	4	15/64	6	$3.75
9/32	4	15/64	6	4.00
5/16	4	9/32	6	4.00
11/32	4	9/32	6	4.25
3/8	4	5/16	7	4.25
13/32	4	5/16	7	4.75
7/16	4	3/8	7	4.75
15/32	4	3/8	7	5.00
1/2	6	7/16	8	5.50
17/32	6	7/16	8	5.75
9/16	6	7/16	8	5.75
19/32	6	7/16	8	6.25
5/8	6	9/16	9	6.25

Note: For taper shank requirements, use standard split sleeve reamer driver. Available at moderate price.

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CARBIDE CUTTING TOOLS

Boring Tools • Centers • Counterbores • Spotfacers • Cut-Off Tools • Drills • End Mills • Fly Cutters • Tool Bits • Milling Cutters • Reamers Roller Turning Tools • Special Bits

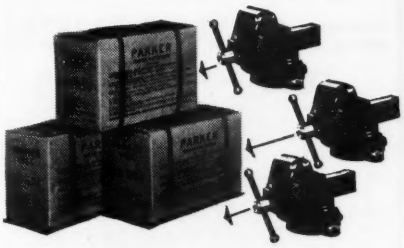
Walker-Turner 24-Inch 4-Speed Jig Saw

For cutting metal, hard substances, and wood, the Walker-Turner Co., Inc., Plainfield, N. J., is marketing a 24-inch 4-speed jig saw featuring a tensioning device which permits the tension required by different size blades to be varied without stopping the machine. Additional outstanding features of the unit include a blower which ensures constant air pressure at all speeds, and a saw guide which is adjustable to all thicknesses of material, thus permitting a clear view of the work at all times.



Walker-Turner 24-Inch 4-Speed Jig Saw

The Walker-Turner 24-Inch Jig Saw is provided with four speeds of 600, 900, 1,250, and 1,740 r.p.m. and is equipped with a table which has an area of 16 x 12¾ inches and can be tilted 45 deg. The machine has a throat capacity of 24 inches and is so designed that the arm may be swung to either side or removed completely for larger work. The unit measures 50½ inches high overall with a bench and 25½ inches high overall without a bench. The length of the machine is 33 inches and the shipping weight is approximately 192 lb. with bench and 132 lb. without bench or motor.

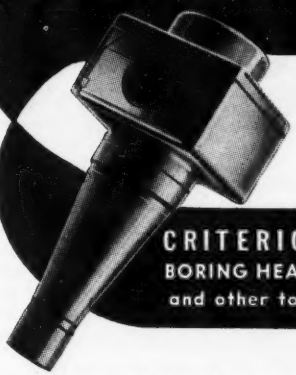


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Depend on Wendt-Sonis for your Boring Tool requirements as well as carbide cutting tools of all types. You'll get prompt service, in most cases shipment "out of stock" on standards. W-S Criterion Boring Heads and Bars are available as single items or in toolroom sets consisting of single heads and bar sets or combinations of large and small heads with complete sets of bars. They make a complete accessory for any jig borer or toolroom milling machine.

Features of CRITERION Boring Heads

- SMOOTH, COMPACT, RIGID . . . MAINTAINS ORIGINAL ACCURACY OVER LONG PERIOD
- PARTS SUBJECT TO WEAR ARE HARDENED
- LEAD SCREW OF HARDENED TOOL STEEL, THREADS GROUND FROM SOLID AFTER HARDENING
- LARGE GRADUATED DIAL
- SHANKS INTERCHANGEABLE

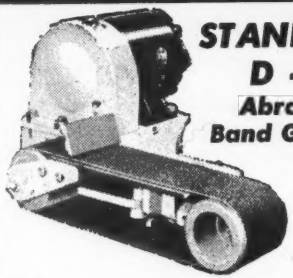
New W-S* CRITERION *Catalog

Contains latest data, sizes and prices. WRITE: Wendt-Sonis Company, Hannibal, Missouri; 580 North Prairie Ave., Hawthorne, Calif.; 1361 West Lake St., Chicago, Illinois.

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This new, streamlined bench type grinder assures fast, quality finishing on metals, plastics, wood, fibre . . . at low cost. Built to machine tool specifications, Standard D-4 is equipped with improved band tension control and specially designed protective motor hood. 4x36¼" band. The ideal portable unit.

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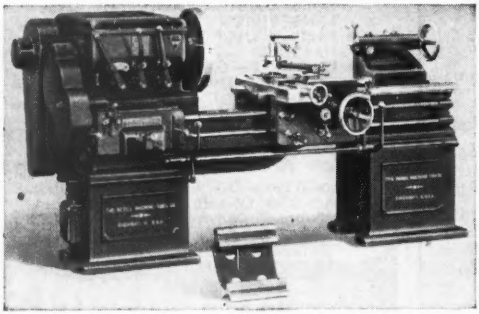
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PATTERNMAKERS like this "Oliver" for ripping, cross-cutting, dadoing, etc. Table remains level while saw tilts up to 45°. Table and gauges accurately graduated. Quickly adjustable. *Write for Bulletin No. 270D.*
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Furnished in four different sizes as follows: Series "LN" 18/27", Series "A" 20/30", Series "B" 22/34", and Series "D" 25/40".

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The Nebel Machine Tool Co.
CINCINNATI OHIO

SIMPLE — FAST — ACCURATE LOCATING



SIMPLE

Place instrument in spindle of boring mill (vertical or horizontal), drill press or jig borer.

FAST

200 - 1000 r. p. m. Bring thumb nail to bear against centering bead until it runs true. Stop machine and focus on work. Keep eye at least 4 inches from viewing aperture.

ACCURATE

Locate cross lines on work to match lines in viewing aperture.

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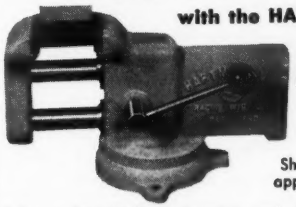
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The COLOR tells the THICKNESS

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No. 1 Capacity 0 thru 3/32" wire $1.50
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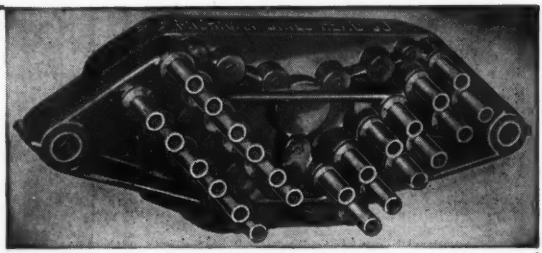
Will earn its cost in one day. The Hjorth Perfection Spring Winder offers the ideal means of winding extension, compression, torsion, taper, double taper, or left hand springs. Try one in your shop. You'll like it and the price is reasonable.

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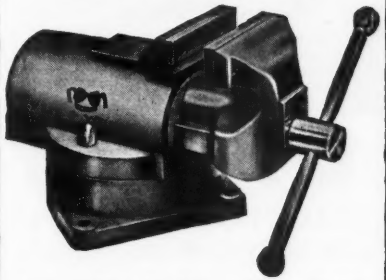
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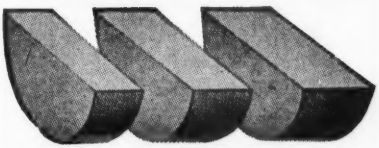
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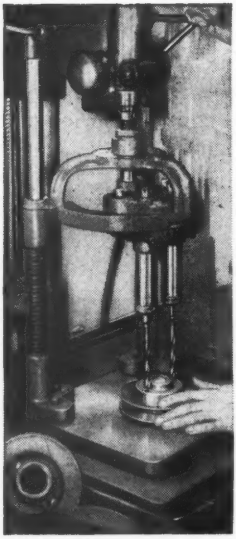
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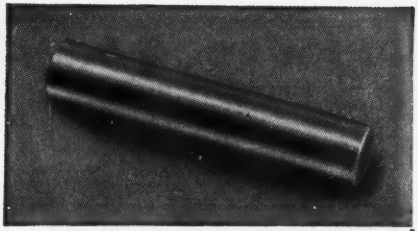


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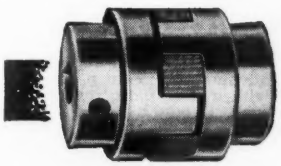


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CATALOG 546.

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Only with flexible couplings fitted to the peculiar requirements of the particular job can you be sure of maximum efficiency.

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Our ROWBOTTOM cam cutting facilities are at your disposal for your cam requirements.

Let us have your inquiries.

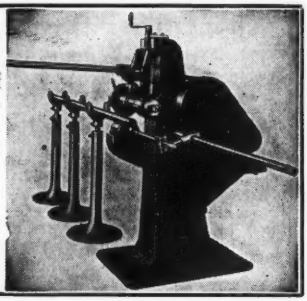
BLOOMFIELD TOOL CORP.
37 FARRAND ST. BLOOMFIELD, N. J.

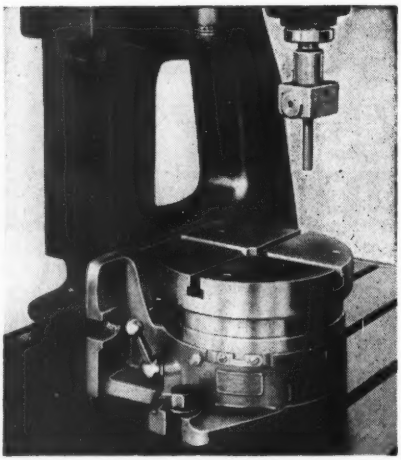
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Joints may be fitted to specification or with

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square hole

taper hole

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2500 lb. CAPACITY

LIGHTWEIGHT STURDY—SAFE

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- This notably different Lyon-Raymond lift truck is a worthy addition — on its own particular merits — to a well-established line of Lyon-Raymond hydraulically operated lift and pallet trucks.

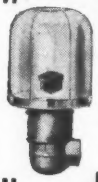
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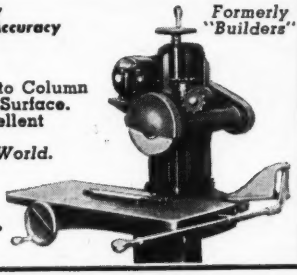
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New PRECISION BALL BEARING SPINDLE

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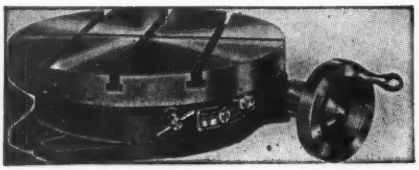
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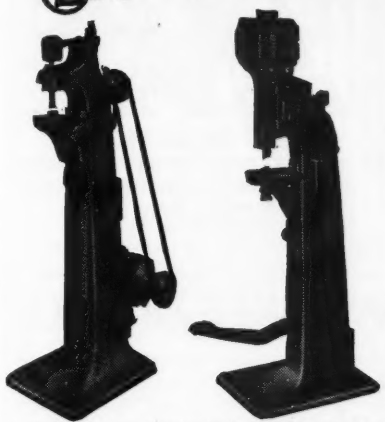
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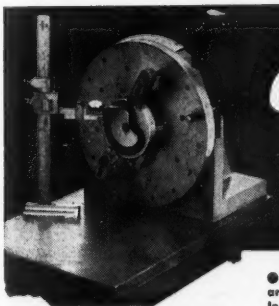
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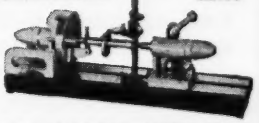
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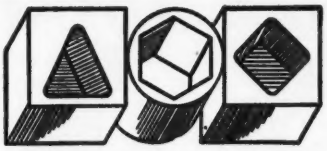
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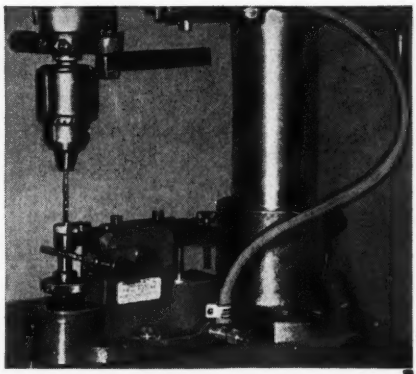
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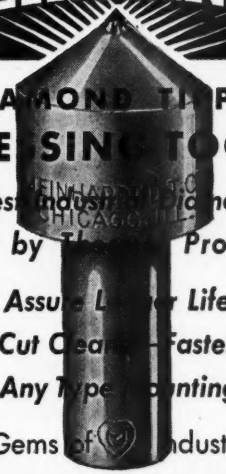
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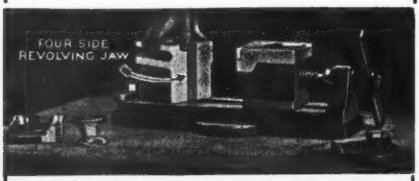
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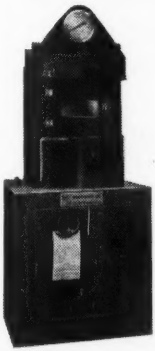
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(Capacities to 1,000 Tons)

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Used for Blanking, Forming, Embossing, Hobbing, Try-out



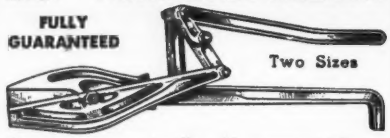
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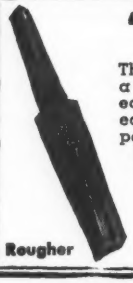
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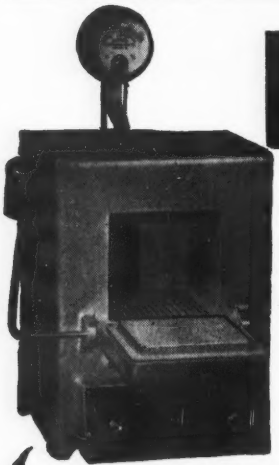
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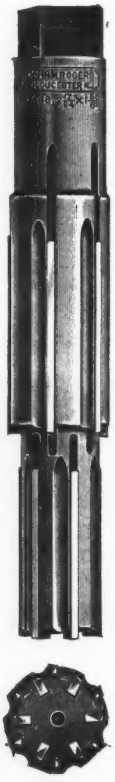
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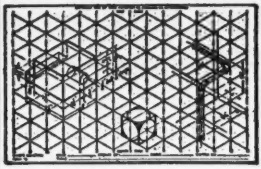


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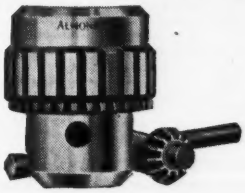
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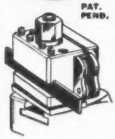
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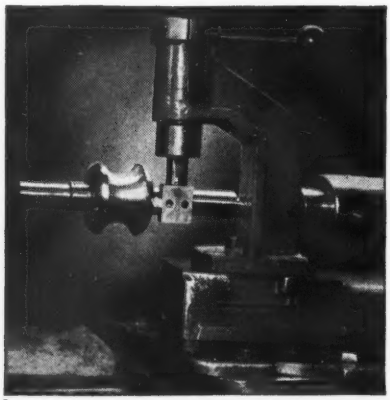
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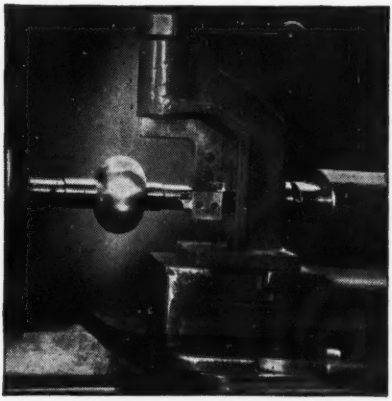
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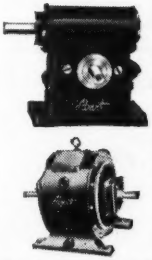
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20" Long x 12" Wide x 6¼" Deep
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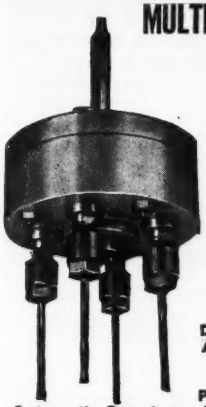
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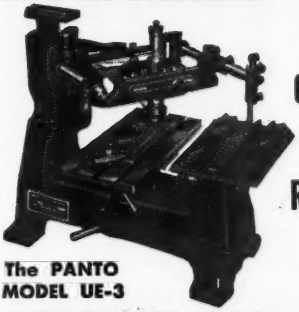
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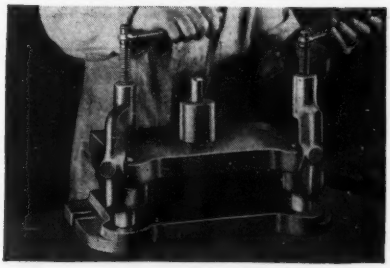
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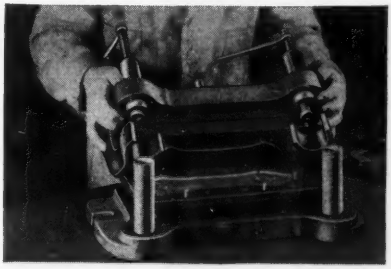
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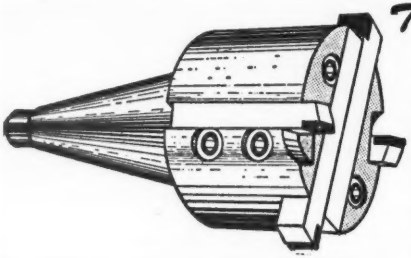
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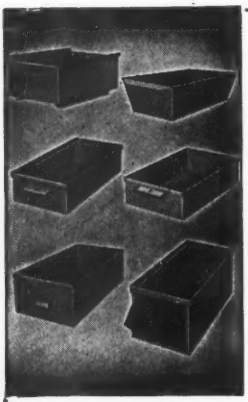
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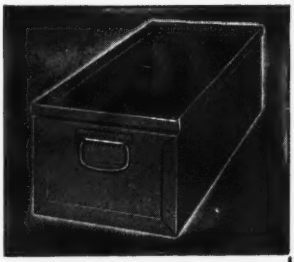


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with Drop Handles

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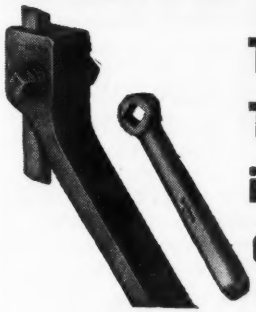


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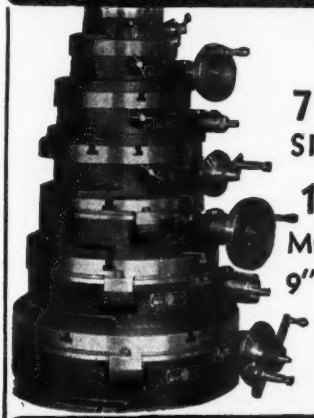
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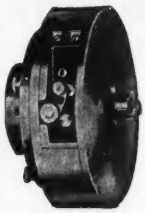
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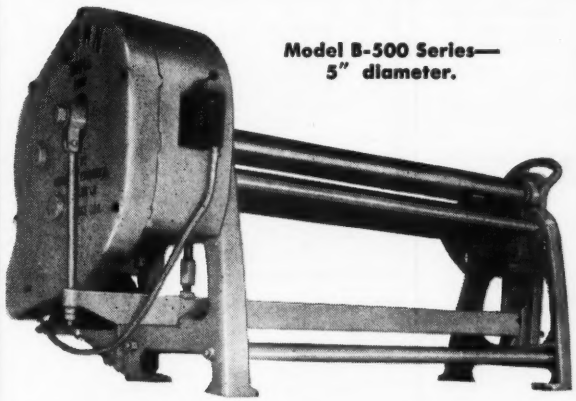
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With 23 Accessories

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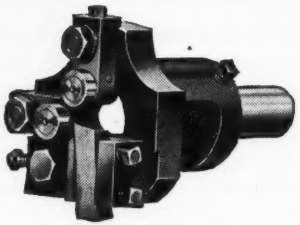
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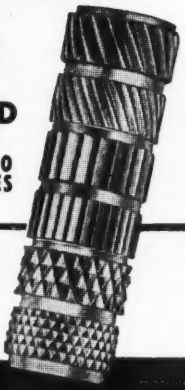
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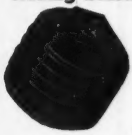
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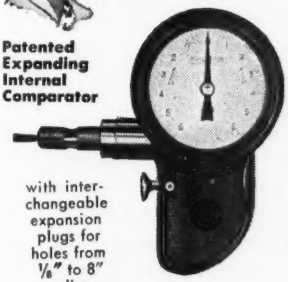
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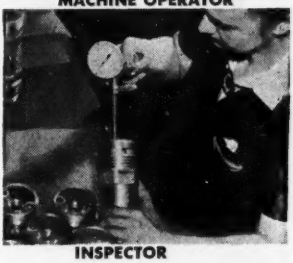
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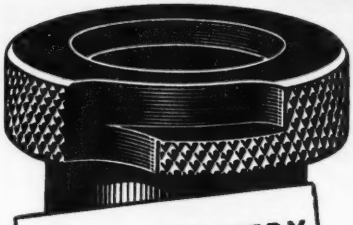
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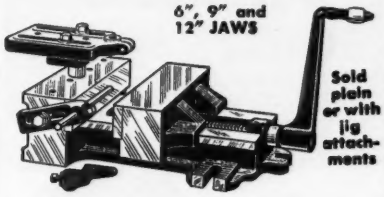
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Many patterns using only straight knurls



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B-RIGHT-ON
SOCKET SCREW PRODUCTS

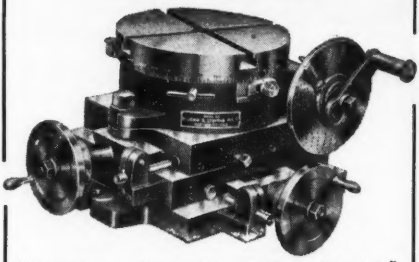


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No. 1 COMPOUND TABLE
With 7½" Dial Type Rotary Table Mounted

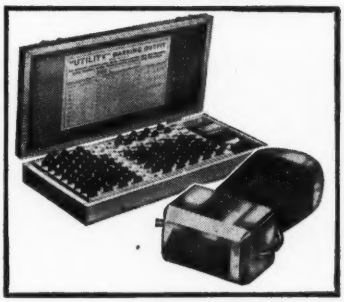


We also make a No. 2 Size for 12" Rotary Table. Can be had without Rotary Table.

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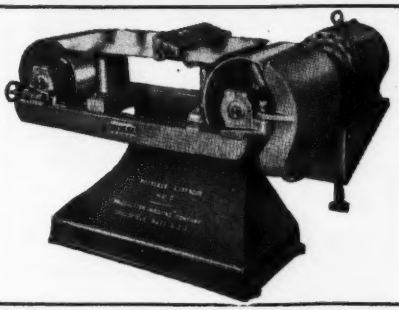
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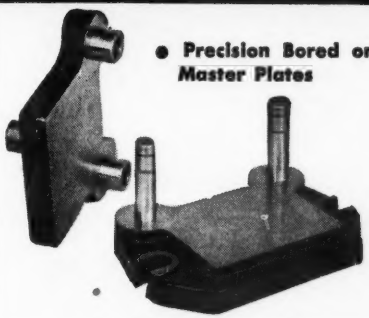
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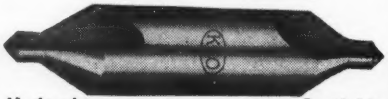
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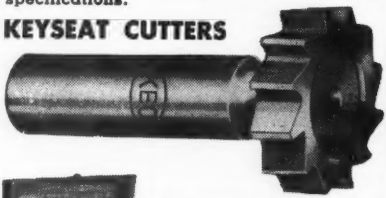
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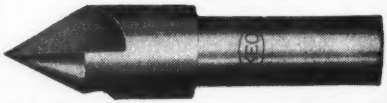
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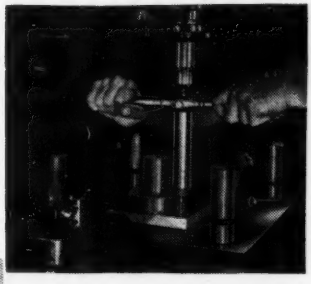
THE NEW LASSY UNIVERSAL TAP GUIDE

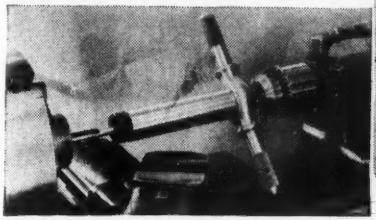
$18.75
LESS ADAPTERS

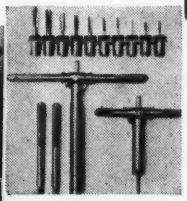
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Below, the Lassy Tap Guide is shown being used tapping a form tool on a lathe. It is ideal for all lathe tapping and threading.

Center picture shows 12" Guide spindle with medium length handles, 6" Guide spindle with short handles, also 1 set long handles, spring clips for mounting Tap Guides and tap adapter rack. Price, complete as shown, less adapters, $38.







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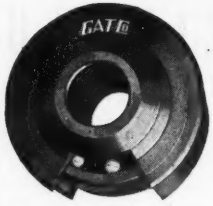


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10	4"	¾"	½"	70.
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20	7½"	1½"	1"	125.
30	4"	¾"	1¼"	70.
32	5⅛"	1"	2"	115.
35	4⅝"	⅝"	1½"	85.
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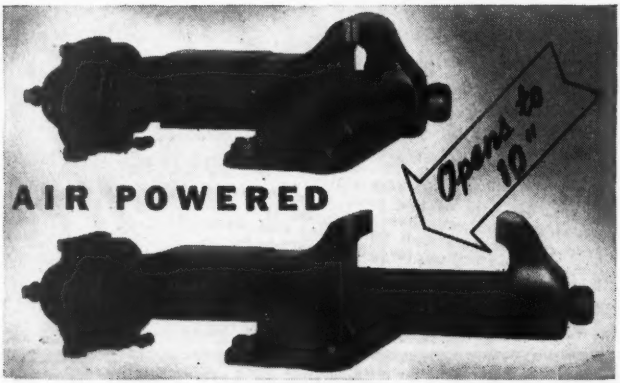


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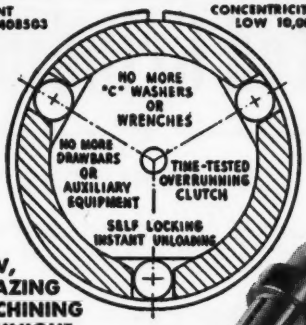
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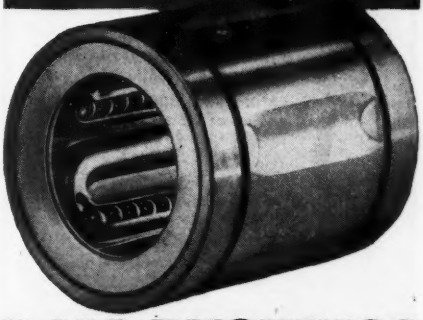
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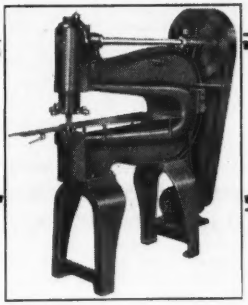
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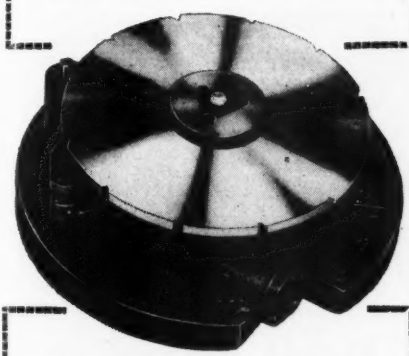
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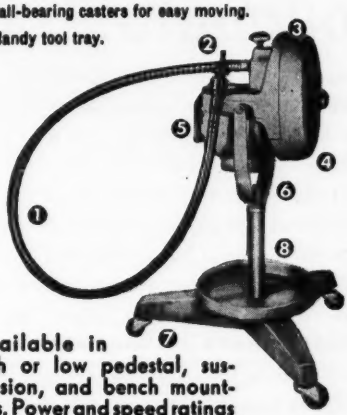
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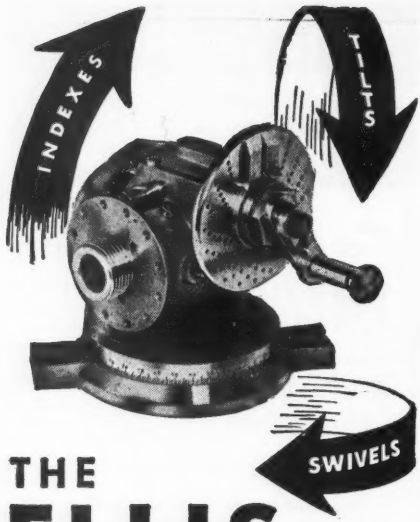
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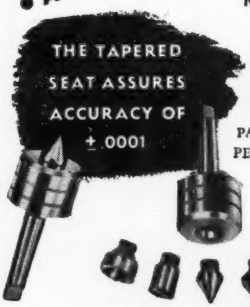


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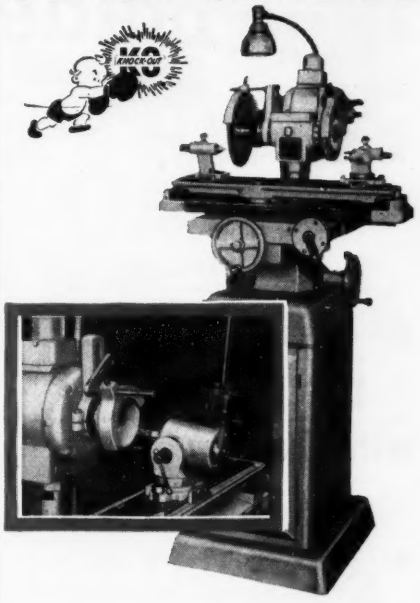
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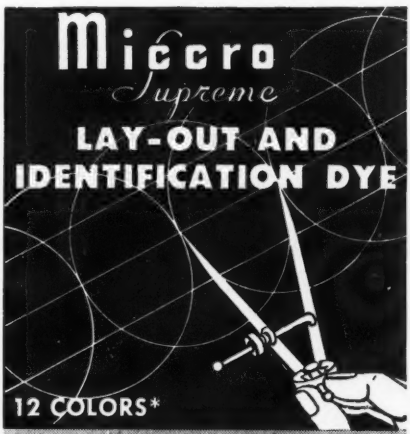
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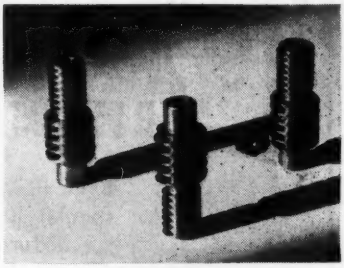
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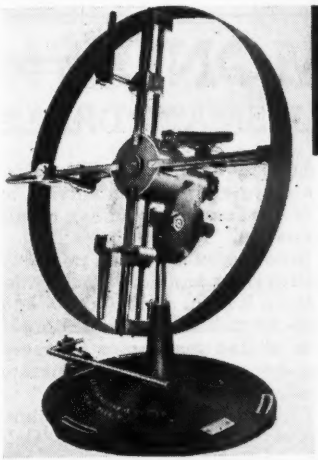


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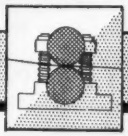
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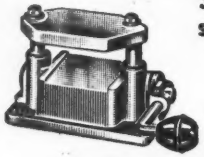
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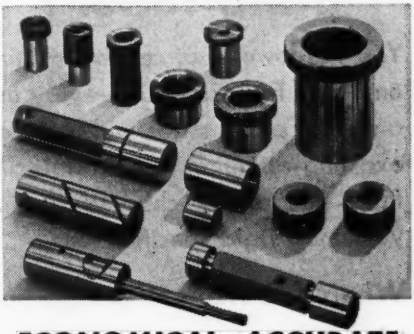
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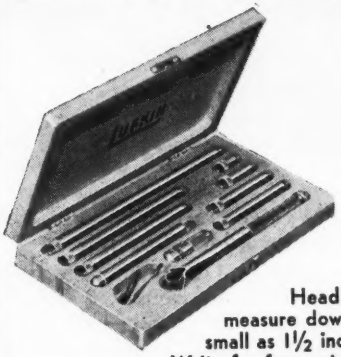
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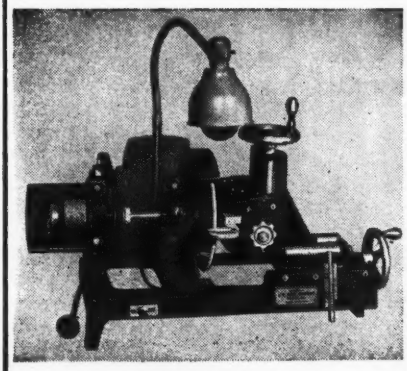
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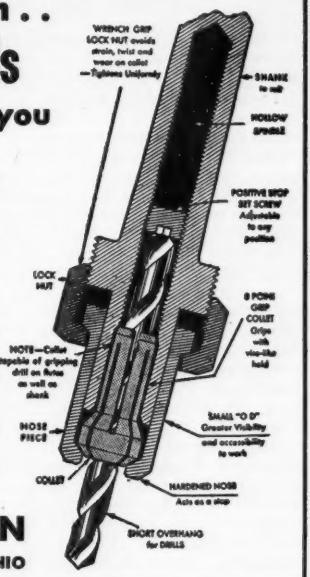
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New Books

"Modern Management Practices and Problems." The American Management Association has published a review of current policies, practices, and problems in seven fields of business and industrial management; namely, production, distribution, finance and economic planning, labor relations and personnel administration, office management and administration, insurance, and packaging and merchandising. Titled "Modern Management Practices and Problems," the 25,000-word analysis includes articles headed: "Changing Aspects of the Personnel Function in Management" by Guy B. Arthur, Jr., former vice president of the American Thread Company and now a personnel consultant; "Production Problems and Policies" by L. Clayton Hill, former works manager, Eagle Pencil Company; "Office Management and Personnel Trends" by I. O. Royse, office manager, Ralston Purina Company, St. Louis; "New Aspects of Distribution" by A. A. Stambaugh, vice president, Standard Oil Company of Ohio, Cleveland; "Financial Policy in Relation to Changing Economic and Social Conditions" by Jules I. Bogen, editor, Journal or Commerce, New York, and Professor of Finance, New York University; "Changes Influencing Insurance Buying" by I. M. Carpenter, manager, Insurance Department, Ebasco Services, Inc., New York; and "Package Development and Merchandising" by E. A. Throckmorton, president, Container Laboratories, Inc., Chicago.

The pamphlet is No. 139 of AMA's General Management Series and may be purchased from the Association, 330 W. 42nd St., New York 18, N. Y., at $1.00 a copy.

Starting a Small Machine Shop. By Fred H. Colvin. Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y. 212 pages. 93 illustrations. 16 tables. Cloth binding, board covers. Price $2.50.

The sound business methods, shop operating practices, and valuable know-how developed during the author's sixty years of personal contact with machine shops, large and small, are offered in this concise handbook to assist the machinist in opening his own small machine shop. The many costly mistakes made by novices in



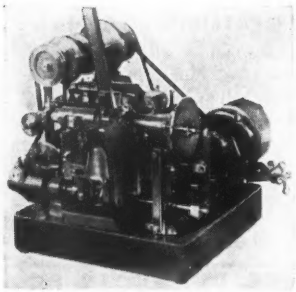
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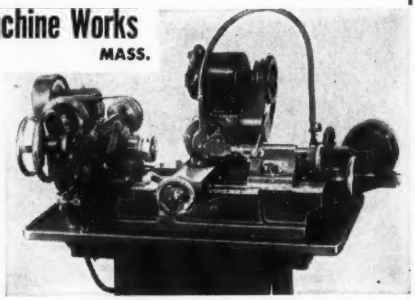


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business are pointed out and positive ways of preventing them are carefully explained.

The book tells how to choose a suitable location, how to select machines and other equipment, whether to buy new or second-hand machines, where and how to store materials, how to make charges for different kinds of work to assure an operating profit margin, and so on. It points out both managing principles and the best methods for supervising employees, and shows how to adapt a small shop to handle specialized jobs with limited equipment. Numerous time-saving tables provide authoritative information to help the machinist in turning out dependable work and preventing damage to machines and materials.

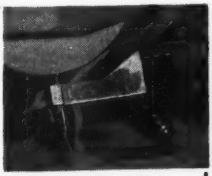
Metal Process Engineering. By Norman E. Woldman. Published by Reinhold Publishing Corp., 330 W. 42nd St., New York 18, N. Y. 291 pages. Illustrations and tables. Cloth binding, board covers. Price, $5.00.

In this volume, the author has attempted to meet a growing demand for a short, yet thorough, treatise on various practical phases of metallurgical engineering and metallurgical processes. The book is intended to meet the needs of engineering students, professional engineers, and production men who would use the information in part or as a whole with their professional work.

Free use of manufacturers' literature, standard books, and catalogs was made to obtain the necessary and desired information. In some cases, items or even entire paragraphs have been copied verbatim from these references. The contents of the book are divided into ten chapters, at the end of each of which is a list of references whereby more detailed information on a

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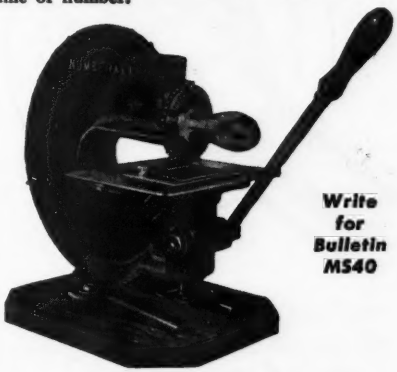
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particular subject may be obtained. The chapter headings are as follows: Casting; The Mechanical Working of Metals and Alloys; Forging; Powder Metallurgy; Joining of Metals; Castings versus Forgings versus Welds; Heat Treatment; Surface Hardening; Machining of Metals; and Tool Steels. A complete index is provided at the rear of the book.

Best's Safety Directory for 1948. Second annual edition. Published by Fred M. Best Co., 75 Fulton St., New York 7, N. Y. 491 pages. Illustrated. Cloth binding, board covers. Price, $5.00.

This directory covers the entire field of safety, fire protection and control, hygiene, first-aid, and sanitation, and is said to be of particular interest to company safety directors, safety engineers, and production men, as well as financial and corporation executives, insurance agents, safety inspectors, purchasing agents, industrial hygienists, medical personnel, public health and safety officials, chambers of commerce, and schools.

According to the publisher, the book shows a 50 per cent increase over the previous edition in actual content. In addition, almost complete editorial changes and rearrangements have been made. An outstanding feature of the book is its indexing and subject - grouping system which, together with numerous illustrations, facilitates the location of safety products even when the user is not certain of the type or name of the product he requires. The logical arrangement of subjects also serves as a check list of hazards.

Typical sections incorporated in the directory are headed Arm and Hand, Body and Leg, Ege and Face, Fire, and so on. The directory also includes the standards established for safety equipment by the leading standards groups.

"Manhattan Rubber Products for Industry." Publication of the sixth edition of "Manhattan Rubber Products for Industry," a condensed catalog of mechanical rubber goods, is announce by the Manhattan Rubber Division, Raybestos-Manhattan, Inc., Passaic, N. J. Described in the catalog are many mechanical rubber products and special items. Particular emphasis is given to transmission and conveyor belting, V-belts, hose, engineered molded products, rubber roll coverings, tank linings and abrasive wheels. Copy free upon request.

New Shop Literature

Sibley Model C-20 Drilling Machine. A four-page two-color catalog published by the Sibley Machine & Foundry Corp., 206 E. Tutt St., South Bend 23, Ind., illustrates and describes the Sibley Model C-20 Drilling Machine and its adaptability to general purpose work in toolrooms and plants. The various construction features of the machine, including the spindle drive assembly, geared tapping head with electrical reversing, and controls, are treated. Copy of Catalog No. 67 is available free in both English and Spanish.

Landis Tool 12-Inch Type LCH Hydraulic Universal Grinders, designed primarily for use in the toolroom but said to have the size, power, and rigidity for use in performing many grinding operations on a production basis, are featured in a 12-page catalog published by the Landis Tool Co., Waynesboro, Pa. Illustrations and descriptions of the features of the machines are included in the catalog, together with tables listing standard equipment and specifications. Copy of Catalog I-44 free upon request.

Super Carbide Cutting Tools. The Super Tool Co., 21650 Hoover Rd., Detroit 13, Mich., has published a folder on its carbide tools for drilling hardened steel. The folder lists specifications and prices on individual tools, as well as kits of tools. Copy free upon request.

"Selecting the Proper Die Head for the Job" is the title of a six-page bulletin now being distributed by The Eastern Machine Screw Corp., New Haven, Conn. In addition to illustrations and descriptions of the various types (general purpose and insert chaser) and styles of H&G Die Heads and general recommendations as to their use, the bulletin includes tables showing the sizes, capacities, and carrier ranges of the Heads. Copy of Bulletin No. 32 free upon request.

Vanott Type V-1 Buffing and Polishing Machine for use in the buffing and polishing of a wide variety of metal products is illustrated and fully described in a four-page folder published by the Vanott Machine Corp., 244 Colgate Ave., Buffalo 20, N. Y. Copy free upon request.

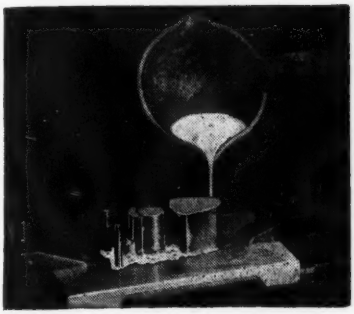
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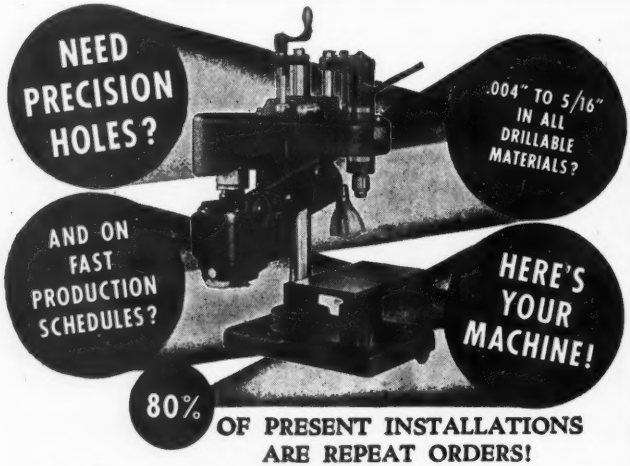
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"Better Grinding," Second Edition. Published by the Landis Tool Co., Waynesboro, Pa., this 96-page 6¼ x 9¾-inch book illustrates and describes numerous types of grinding machines, including plain hydraulic grinders, hydraulic universal grinders, universal and tool grinders, hydraulic chucking grinders, hydraulic crankpin grinders, radial crank grinders, hydraulic grinders, hydraulic and radial cam grinders, Race-A-Way grinders, hydraulic roll grinders, valve grinders, and hydraulic crankshaft regrinders. The book has a sturdy, attractive, easy-to-keep-clean cover and is wire bound so as to lie flat wherever opened.

"Better Grinding" consists of 18 chapters and includes 100 two-color informal sketches. Numerous spaces for notes are also included in the book, copy of which can be obtained by mechanical executives addressing requests on their company letterheads.



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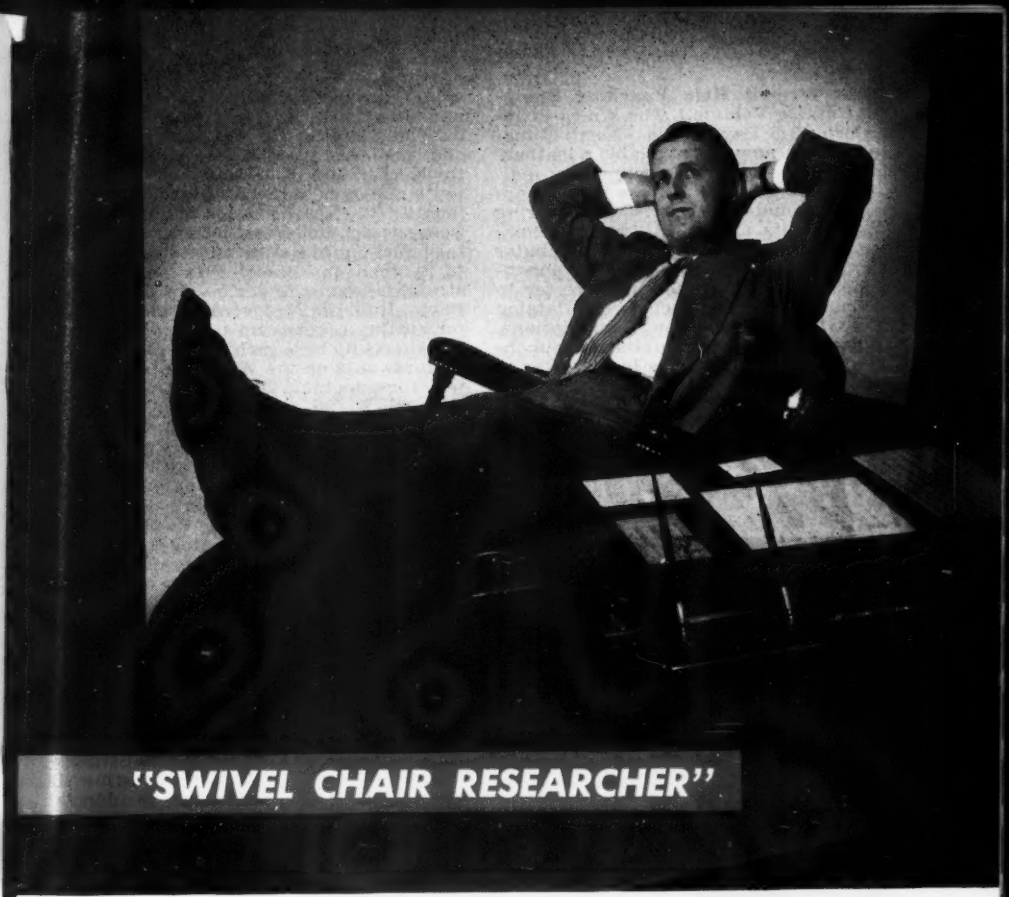


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Hammond Carbide Tool-Grinders. A 12-page catalog issued by Hammond Machinery Builders, Inc., Dept. GP-21, 1615 Douglas Ave., Kalamazoo 54, Mich., illustrates and describes the company's extensive and complete line of wet and dry carbide tool grinders, chip breaker tool grinders, and diamond finishing tool grinders. The catalog contains information on all Hammond new and improved carbide tool grinders and presents specifications for each machine. Copy of Catalog No. 220 free upon request.



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Wales-Strippit Hole Punching Equipment Catalog Volume 1. The Wales-Strippit Corp., 345 Payne Ave., North Tonawanda, N. Y., now has available a leatherette covered ring binder containing individual catalogs on its various hole punching units, notching units, and spring stripping units. Catalog BL presents complete illustrated, descriptive, and tabular information on punching units for punching holes up to 2 inches in diameter in sheet metal up to ⅛ inch thick. Catalog CD contains illustrations, descriptions, and tables on punching units for punching holes up to 1⅛ inches in diameter in mild sheet metal up to ⅛ inch thick. Catalog C presents illustrated, descriptive and tabular data on punching units for punching holes in angles, extrusions, channels, and flat sheets up to ⅛ inch thick. Bulletin CJ treats of punching units for punching mild steel up to ¼ inch thick. Catalog H comprises illustrations, descriptions, and tables on horizontal punching units for punching holes up to ¼ inch in diameter in curved and straight flanges and rims up to ⅜ inch thick. Bulletin N covers notching units for cutting notches up to 5 x 5 inches in flat sheets up to ⅛ inch thick. Catalog PS features data on the Wales Plate Set System for punching holes up to ⅜ inch in diameter in flat sheets up to ⅛ inch thick. Catalog S deals with spring stripping units for stripping metal from conventional dies. A stamping press and press brake data sheet is also contained in the binder which is designed to allow for easy insertion of new catalogs and data sheets as issued.

Mechanical executives desiring copies of the Wales-Strippit Catalog Volume 1 are asked to address their requests on business letterheads direct to the company.

Paragon Precision Self - Aligning Sub-Press for use with kick, arbor, air, and punch presses in performing staking, piercing, bending, numbering, forming, and assembling operations is illustrated and described in a circular published by Paragon Metal Products, 844 W. Adams St., Chicago 7, Ill. Copy free upon request.

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Di-Acro Catalog No. 48-13. Published by the O'Neil-Irwin Manufacturing Co., 306 Eighth Ave., Lake City, Minn., this 40-page catalog contains illustrations and specifications of all Di-Acro Precision Machines which are now available in six different types and a total of 18 different sizes. Data are presented on rod parters, benders, shears, notchers, punches, brakes, and radius brakes, as well as examples of "Die-Less Duplicating."

Copy of Catalog No. 47-13 is available free to mechanical executives addressing requests on their company letterheads.

Heli-Coil Screw Thread Inserts. A four-page bulletin illustrating and describing screw thread inserts for use in aircraft engines, grinders, carburetors, brakes, spot welders, induction heating machines, and various other equipment has been published by the Heli-Coil Corp., Long Island City 1, N. Y. The bulletin explains how the inserts are now being used by various manufacturers in their products as original equipment, as well as for the quick, easy, and economical repair of stripped, damaged, or incorrectly tapped threads. Copy of Bulletin No. 148 free.

DoAll Spiral Saw. The DoAll Co., Des Plaines, Ill., is now distributing a circular illustrating and describing a saw band having a hard cutting edge which spirals around the band, thus providing a 360-deg. cutting edge so that metals, plastics, and other materials can be cut in any direction without rotating the work. Data on available sizes and prices are included. Copy free upon request.

"Mac" Revolving Center for use with automatic high speed lathes, hand screw machines, and various other machines in working metal, wood, or plastic is described in an illustrated leaflet now available free from The Whitfield Manufacturing Co., Washington C. H., Ohio.

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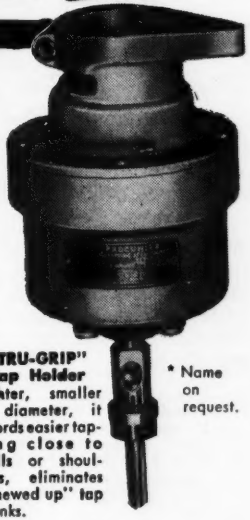


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Stuart's "SuperKool" Cutting Oil Base. An eight-page pocket-size booklet published by the D. A. Stuart Oil Co., Ltd., 2741½ S. Troy St., Chicago 23, Ill., outlines the use of a sulphurized heavy duty lubricant, designated as Stuart's "SuperKool" Base, for deep heavy duty drawing operations with stainless steel, beryllium, copper, and other difficult materials, as well as for high speed machining, burnishing, trimming, gear cutting, milling, hobbing, drilling, broaching, and so on. Copy free to metal-working executives upon request.

Motch & Merryweather Slitting Saw Blades for milling operations are shown and described in a four-page bulletin now being issued by The Motch & Merryweather Machinery Co., Penton Bldg., Cleveland 13, Ohio. The bulletin fully discusses the four principal advantages of the saw blades; namely, triple-chip efficiency, dual drive, interchangeability, and range of pitch. A table presenting information on the complete range of sizes and thicknesses in which the saw blades are available is included in the bulletin. Copy free upon request.

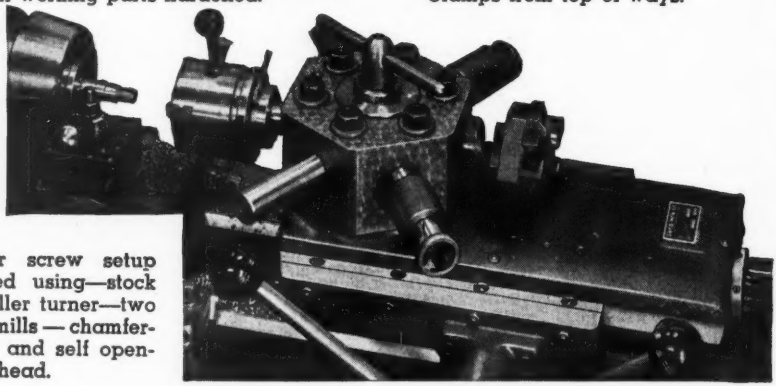
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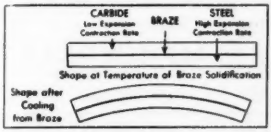


Fig. 1

Mechanically-held tools are especially suitable for medium and heavy-duty cutting, as well as "interrupted" machining such as milling, or cutting over fins, slots, bosses, hard spots, etc. The design of these tools is such that machine down time is reduced, since it is usually possible to change the cutting blade without removing the tools from the holder. Resharpening procedure is simplified since grinding is confined to the carbide cutting element.

Figure 2 illustrates a "Universal" Face Kennamill, in which solid Kennametal blades are held by wedging into a steel cutter body. The blades are advanceable; can be sharpened individually in a grinding jig; and may be set to the shoulder of a fly cut made with one blade in position.

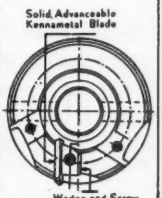


Fig. 2

Figure 3 shows a popular type of Kennametal clamped-on tool. The Kennametal blank is held in position by a steel clamp and a back-up screw. The blank can be advanced many times until the major part of the Kennametal has been used.



Fig. 3

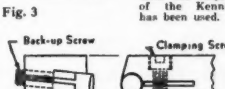


Fig. 4 Solid, Indexable Kennametal Round

The new "Kennamatic" tool is shown in Figure 4. The tip is indexable; i.e., when a portion of its periphery becomes dull the tip can be turned on its own axis to present a new cutting edge, without changing the tool holder. The Kennametal insert is held vertically, thus best utilizing the compressive strength of Kennametal (up to 800,000 PSI). These tools are also available with square and triangular inserts.



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5/8"	15	12	8.00	15/16"	15	12	13.00
21/32"	15	12	8.00	31/32"	15	12	14.00
11/16"	15	12	8.25	1"	20	15	16.00
23/32"	15	12	8.50	1-1/16"	20	15	17.00
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Over the Editor's Desk

It CAN Happen Here!

"SEVERAL prominent anti-Communist political figures and student leaders were arrested . . . Interior Ministry Security Police with rifles and machine guns took up posts before the Parliament Building, government offices and foreign embassies. Parliament postponed its session indefinitely."

The above quotation is from a newspaper report of February 24, 1948, concerning developments in a foreign country as Communists assumed control. Of course, it couldn't happen here. Or could it?

It not only could, but will—if we don't come to our senses, and that right soon. The results of several polls by Gallup and others, made in recent months, clearly indicate to anyone who can read between the lines that a large part of the American public is beginning to wonder whether governmental regimentation might not be better than domination by labor unions, and whether American workmen who can paralyze the nation overnight by striking in vital industries are not really enjoying too much freedom. The union members, on the other hand, are beginning to think the same thoughts concerning the owners of the industries in which they work. It is evident that our long-vaunted American freedom will survive only if we scrap this selfish philosophy of "get while the getting is good."

Selfishness—disregard for the moral laws and disregard for the rights of others—has been the source of all the evil in the world since the beginning of time. Selfishness ruined ancient Rome; selfishness ruined both modern Germany and modern Italy, ultimately will ruin Russia, and unless the American people abandon their selfish philosophy of obtaining by force more than they are entitled to under the natural law of supply and demand, their selfish philosophy will ultimately ruin the United States.

The determination by organized groups to obtain more for themselves by taking it away from others through withholding the necessities of life has devaluated the United States currency and increased the cost of living out of all reason, and now that the inflation for which they are largely responsible is threatening to wipe out their gains, they are demanding further wage increases.

The constant pressure for higher and ever higher wages cannot go on much longer; the wage-price structure is already threatening to topple and if pressure continues to be applied for higher wages and the resulting higher prices the structure will topple with a crash—a crash which will be so much worse than the last one that it may change America from a nation whose economy is based upon free enterprise into a nation whose economy will be based upon government ownership and operation of all enterprise; from a nation dedicated to political freedom and economic independence to a nation dominated by bureaucrats engaged in managing a planned national socialist economy.

When that time comes, the papers throughout the world will report that in Washington "several prominent anti-Nation Socialist political figures and student leaders were arrested . . . . as Security Police with rifles and machine guns took up posts before the Capitol Building, the White House, government offices and foreign embassies. The United States Congress postponed its session indefinitely."

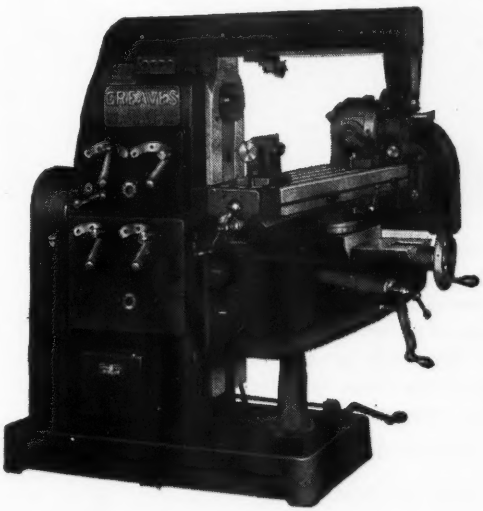
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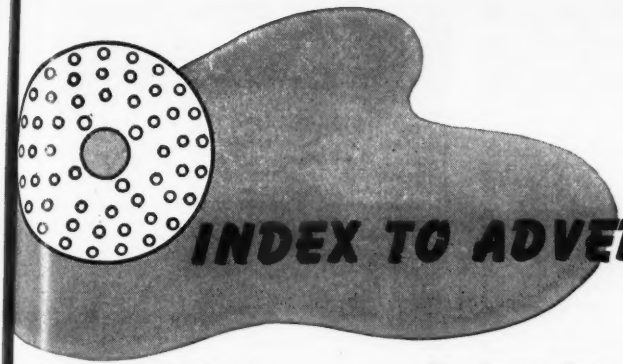
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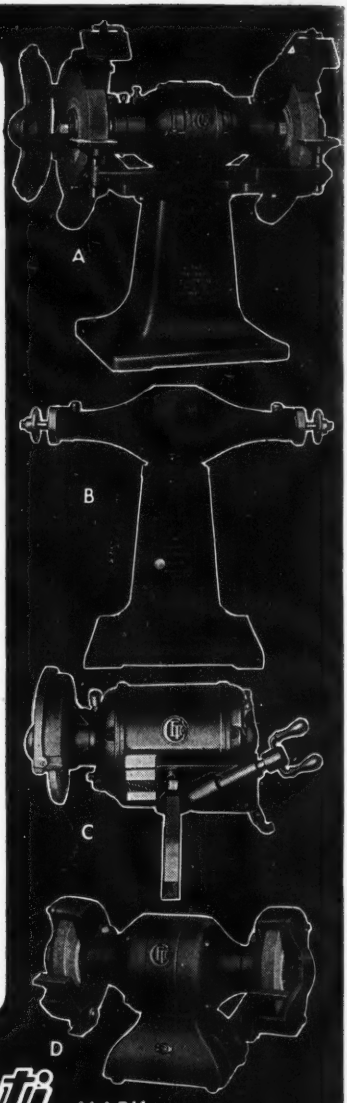
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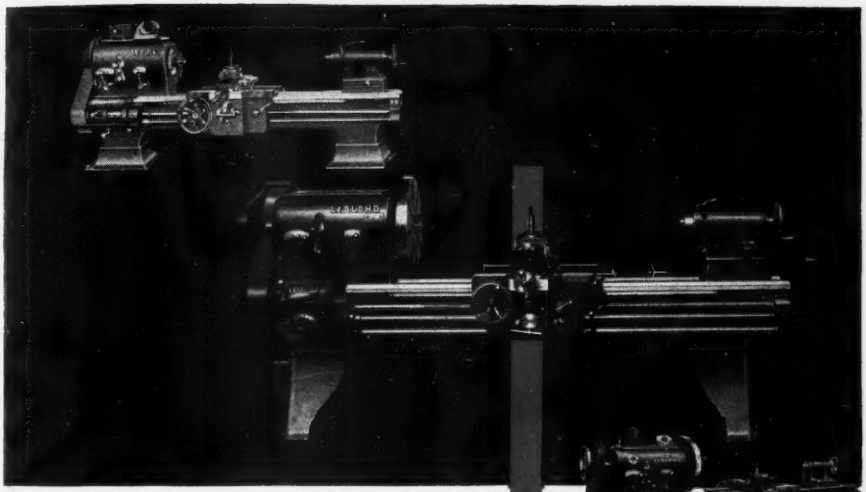


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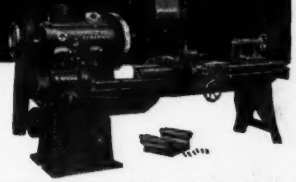
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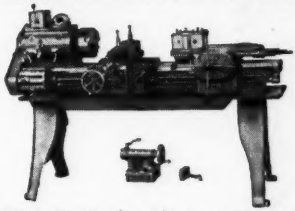
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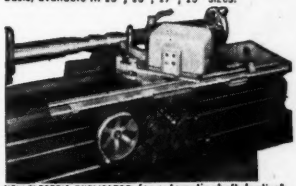
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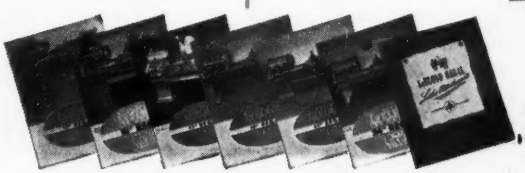
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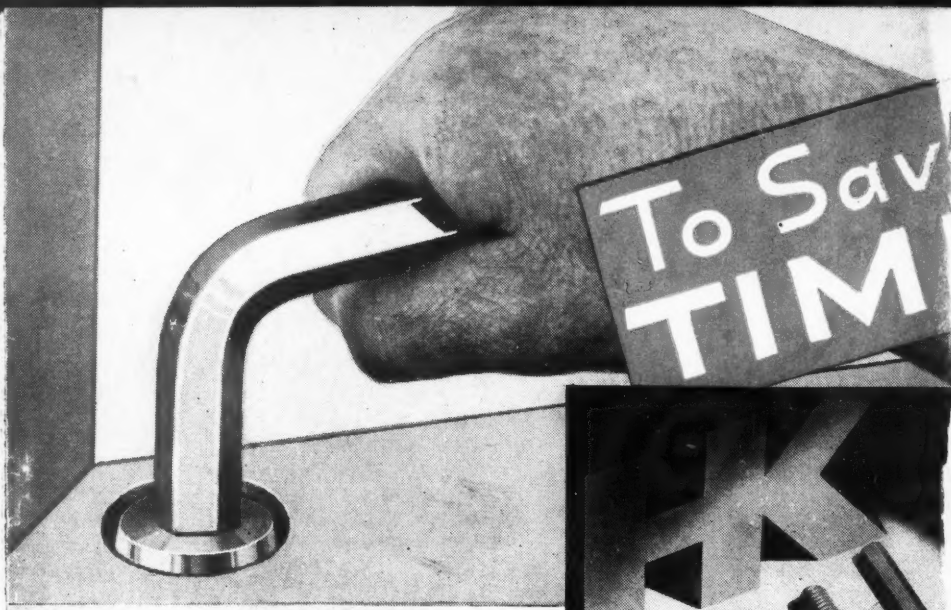
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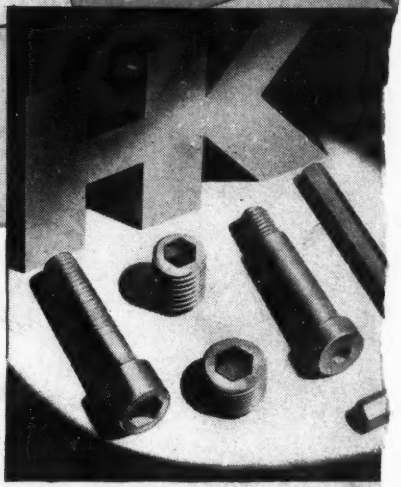


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